2.8 Biological Resources

This chapter outlines the biological resources (plants, wildlife and wetlands) of the Bay Area and presents an update of biological data presented in the 2001 RTP EIR. The distribution of wetlands and biological resources in the project area has not changed substantially between the two environmental assessments; however, there have been several noteworthy changes to the regulatory environment surrounding these resources. This chapter generally describes various habitat types found in the region, associated rare, threatened and endangered (special-status) species, and areas of ecological significance. The potential effects of the proposed Transportation 2030 Plan on sensitive species and habitats, and the fragmentation of existing habitats are identified. The information and analysis presented are regional in scope. The assessment is intended to assist area-wide issue identification as it relates to regional transportation planning.

ENVIRONMENTAL SETTING

PHYSICAL SETTING

Ecosystems in the Bay Area

The Bay Area supports an extensive diversity of distinct vegetative communities. Broad habitat categories in the region generally include coastal scrubs, oak woodlands, grasslands, estuaries, coastal salt marsh, riparian habitats, eucalyptus groves, interior wetlands, and rivers and streams. Interior wetlands, estuaries, rivers and streams, and urban/highly-disturbed habitats are not vegetation communities per se, but provide natural functions and values as wildlife habitat and are considered in this EIR.[1] Due to the amount of native vegetation lost to urbanization throughout California, the California Department of Fish and Game (CDFG) identifies several specific native vegetative communities as rare and/or sensitive. These natural communities are of special significance because the present rate of loss indicates that additional acreage reductions or further habitat degradation may threaten the viability of dependent plant and wildlife species and possibly hinder the long-term sustainability of the community or species dependent upon the community.

Some of these natural communities have a rich complement of sensitive species and species-oriented programs that will usually protect them. Other communities do not support rare species and, therefore, species-oriented protection cannot be invoked. Sensitive communities in the Bay

[1] Natural communities are compositions of species that reoccur due to responses to similar combinations of environmental conditions and are not dependent on human intervention. For this discussion, native vegetation pertains to those species present in California prior to European colonization, while species such as wild oats and brome grasses, which dominate much of the current California landscape, are considered non-native. Vegetation communities that are dependent on human intervention, such as horticultural species, irrigated agriculture, or landscaped or urbanized areas, are considered introduced communities.

Area include coastal salt marsh, freshwater wetlands, and mixed oak woodlands (coast live oak occurs as an upland and riparian community within the Bay Area).[2]

Following are descriptions of four common natural communities in the Transportation 2030 Plan area. These communities are discussed in detail because of their widespread distribution in the planning area, and to provide a setting for discussing special status plant and wildlife associated with these communities. These communities include coast shrub and chaparral, grasslands, riparian, and rivers and streams.

Several other natural communities also have widespread distribution in the proposed Transportation 2030 Plan area. For brevity, descriptions of Bay Area coastal marsh and estuaries, woodlands, eucalyptus grove and interior wetland communities are included in Appendix F of this EIR.

Coastal Scrub and Chaparral

The coastal scrub and sage scrub plant communities in the Bay Area are recognized on the basis of the dominant species: California buckwheat, black sage, California sagebrush, California buckwheat, coyote brush, mixed sage, and purple sage series (Sawyer and Keeler-Wolf, 1995). They are particularly dominant in the drier southern slopes and on exposed rocky slopes and bluffs within the Coast Ranges in the Bay Area. The coastal scrub is best considered as a collection or assemblage of different vegetation series, with various intergrades between the above-described plant communities. The coastal sage scrubs mix with various coastal terrace forests, grasslands, chaparrals, and foothill woodlands and are common in Marin, San Francisco, and San Mateo Counties near the proposed Transportation 2030 Plan corridors. A similar chaparral habitat occurs in the Diablo Range in Contra Costa and Alameda Counties, but maintains many of the same basic vegetative elements. Vegetation mosaics can be controlled by the soil type, slope exposure, and summer fog. Generally, these are communities of dense, low shrubs with scattered grassy openings. Most growth and flowering occur in late spring and early summer.

The distribution of rare plants and wildlife in this community often coincides with the distribution of uncommon geological features. In the case of coastal scrub plant communities, an array of plants and wildlife have adapted to serpentine-derived soils in both scrub habitats and grasslands. Such habitats may occur as individual rock outcrops on hillsides or steeper talus slopes, or as moderately sloped hillsides and alluvial deposits. Special-status serpentine-adapted scrub species include: coyote ceanothus (*Ceanothus ferrisae*), Presidio clarkia (*Clarkia franciscana*), Mt. Diablo bird's beak (*Cordylanthus nidularius*), Marin checker lily (*Fritillaria affinis* var. *tristulis*), fragrant fritillary (*Fritillaria liliacea*), Crystal Springs lessingia (*Lessingia*

[2] The CDFG and California Native Plant Society recognize uncommon, vulnerable, or regionally declining habitat types as sensitive or significant communities. These communities are tracked by the CDFG in the California Natural Diversity Data Base. Each community appearing in the database is assigned a rarity and threat ranking that indicates current known acreage of the community, known threats, and the community's sensitivity to perturbation.

arachnoidea), smooth lessingia (*Lessingia micradenia* var. *glabrata*), Marin checkerbloom (*Sidalcea hickmanii* var. *viridis*), San Francisco campion (*Silene verecunda* var. *verecunda*), and Tamalpais jewel-flower (*Streptanthus batrachopus*). Those plants not specifically adapted to serpentine habitats include: San Francisco Bay spineflower (*Chorizanthe cuspidata* var. *cuspidata*), woolly-headed spineflower (*Chorizanthe cuspidata* var. *villosa*), yellow larkspur (*Delphinium luteum*), supple daisy (*Erigeron supplex*), Mt. Diablo buckwheat (*Eriogonum truncatum*), coast wallflower (*Erysisum ammophilum*), robust monardella (*Monardella villosa* var. *globosa*), Marin County navarretia (*Navarretia rosulata*), north coast phacelia (*Phacelia insularis* var. *continentis*), and Metcalf Canyon jewel flower (*Streptanthus albidus* ssp. *albidus*). Generalized habitat for special-status plant and wildlife species listed in this section, and their listing status is provided in Table F-1 in Appendix F.

There are relatively few rare wildlife species within coastal scrub habitats, and these are typically highly specialized invertebrates whose life histories are intimately dependent upon serpentine-associated species. These include callippe silverspot butterfly (*Speyeria callippe callippe*) and two non-serpentine-dependent species, San Bruno elfin butterfly (*Incisalia mossii bayensis*), and mission blue butterfly (*Icaricia icarioides missionensis*).

In Contra Costa and Alameda Counties, chaparral and scrub habitats and adjacent grasslands support the federally threatened Alameda whipsnake (*Masticophis lateralis euryxanthus)*. Critical habitat was designated for the Alameda whipsnake on October 3, 2000 in Contra Costa, Alameda, and Santa Clara Counties, where whipsnake distribution coincides closely with chaparral habitat and adjacent grasslands and oak-dominated habitats. However, the critical habitat designation was rescinded on May 15, 2003 by U.S. District Judge Anthony Ishii. There is currently no designated critical habitat for the Alameda whipsnake.

As a result of the vegetative mosaics in scrub habitats, several of the rare plants described in this vegetation community frequently occur in nearby grasslands, coastal prairies, and other adjacent habitats, particularly those species with high affinity to serpentine-derived soils. Conditions such as slope, aspect, precipitation, temperature, degree of exposure, and the presence of suitable soil conditions often mandate the distribution of rare species.

Grasslands

Grasslands within the Bay Area include generally three community types: the non-native grasslands, and the less common serpentine bunchgrass and valley needlegrass grasslands (Holland, 1986). Non-native annual grasslands occur throughout the Bay Area and consist of a dense to sparse cover of annual grasses associated with a variety of broadleaf herbs and perennial grasses. In a standard reference on California vegetation, the non-native annual grassland community is equivalent to the California annual grassland series (Sawyer and Keeler-Wolf, 1995).

Serpentine bunchgrass and valley needlegrass grasslands are both native vegetation communities with limited distribution in the Bay Area. The former community is limited due to its dependency upon serpentine sites, which are scattered throughout the Coast Ranges. This habitat is known to occur within the Golden Gate corridor, particularly in Marin County, and in the Peninsula

corridor near I-280. This open grassland community is dominated by native perennial bunchgrasses of the genera *Bromus, Melica, Nassella, Poa, Calamagrostis,* and *Festuca*. Native herbaceous species on this habitat type include California poppy, tarweed (*Hemizonia* sp.), and lotus (*Lotus* sp.). Valley needlegrass grasslands usually occur on seasonally moist, fine-textured soils and often intergrade with oak woodland communities. This formerly extensive grasslands habitat is dominated by clump-forming purple needlegrass (*Nassella pulchra*) and a variety of native and introduced grasses and herbs.

Special-status plant species that occur in specialized habitat within grasslands include white-rayed pentachaeta (*Pentachaeta bellidiflora*), San Francisco popcorn flower (*Plagiobothrys diffusus*), showy madia (*Madia radiata*), most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*), Tiburon jewel-flower (*Streptanthus niger*), Tiburon Indian paintbrush (*Castilleja affinis* ssp. *neglecta*), Tamalpais lessingia (*Lessingia micradenia* var. *micradenia*), Contra Costa goldfields (*Lasthenia conjugens*), fountain thistle (*Cirsium fontinale* var. *fontinale*), Carquinez goldenbush (*Isocoma arbuta*), Santa Cruz tarplant (*Holocarpha macradenia*), Marin western flax (*Hesperolinon congestum*), Brewer's western flax (*Hesperolinon breweri*), Diablo helianthella (*Helianthella castanea*), diamond-petaled California poppy (*Eschscholzia rhombipetala*), caper-fruited tropidocarpum (*Tropidocarpum capparideum*), and recurved larkspur (*Delphinium recurvatum*). Most of these species may also occur in vegetation communities other than grassland with their distribution generally restricted to specific soil types, hydrologic regimes, elevation range, and geographic distribution.

A variety of special-status wildlife species are associated with grassland habitats of the Bay Area, including Bridge's coast range shoulderband snail (*Helminthoglypta nickliniana bridgesi*), callippe silverspot butterfly (*Speyeria callippe callippe*), mission blue butterfly (*Icaricia icarioides missionensis*), bay checkerspot butterfly (*Euphydryas editha bayensis*), Edgewood blind harvestman (*Calicina minor*), California tiger salamander (*Ambystoma californiense*), western spadefoot toad (*Scaphiopus hammondii*), California red-legged frog (*Rana aurora draytonii*) (discussed under *Riparian* habitat, below), Alameda whipsnake (*Masticophis lateralis euryxanthus*), San Joaquin whipsnake (*Masticophis flagellum ruddocki*), white-tailed kite (*Elanus leucurus*), golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), California horned lark (*Eremophila alpestris*), and San Joaquin kit fox (*Vulpes macrotis mutica*). The bay checkerspot butterfly is the only grassland-associated wildlife species in the Bay Area with designated critical habitat. Critical habitat was proposed by the U.S. Fish and Wildlife Service (USFWS) for the California red-legged frog on April 13, 2004. Critical habitat for the California tiger salamander was proposed by the UFWS on August 10, 2004, and includes portions of the Transportation 2030 Plan area. The distribution of designated and proposed critical habitat for these species in the Transportation 2030 Plan area is illustrated in Figure 2.8-1 and Figure 2.8-2.

Riparian

Riparian plant communities are tree- or shrub-dominated communities that occur along streams and rivers. Riparian forests, woodlands, and scrub are often separated from one another depending on the amount and density of tree canopy versus shrub canopy. Forests support a closed or nearly closed canopy of trees with variable understory, while woodlands have an open

canopy of trees with an understory that is primarily grassy or herbaceous. Shrubs rather than trees dominate riparian scrub habitat. The most well developed riparian vegetation occurs on the largest Bay Area streams, such as Sonoma Creek, the Napa River, Putah Creek, Alameda Creek, Coyote Creek, the Guadalupe River, San Francisquito Creek, Llagas Creek, and others listed in Table 2.8-1. The major rivers, streams, and other surface waters that support riparian vegetation in the Bay Area are presented in Figure 2.7-1 of Chapter 2.7 in this EIR.

Typical dominant species in the forests, woodlands, and scrubs along these rivers are Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), various species of willow (*Salix* spp.), coast live oak (*Quercus agrifolia*) and white alder (*Alnus rhombifolia*). Vegetation series represented in riparian vegetation of the Bay Area include Fremont cottonwood, arroyo willow (*S. lasiolepis*), as well as coast live oak and canyon live oak series. Where not modified by urbanization, lower reaches of the above-described streams typically intergrade into broad freshwater emergent wetlands dominated by cattails and bulrush (*Scirpus* spp.). Where the riparian habitat has been degraded, either through alteration of the hydrology or direct disturbance to the vegetation, the non-native blue gum eucalyptus (*Eucalyptus globulus*), fennel (*Foeniculum vulgare*), giant reed (*Arundo donax*), or French broom (*Genista monspessulana*) are often dominant, as seen in portions of most large Bay Area streams. Most remaining high-quality riparian vegetation is afforded regulatory protection by CDFG. A discussion of specific regulations is provided in Appendix F.

Within the urbanized portions of the Bay Area, riparian habitats support the densest and most diverse wildlife communities available. The diversity of plant species, multilayered vegetation, and perennial water provides a variety of foods and microhabitat conditions for wildlife. Mature willows, oaks, sycamores, and other riparian trees provide high-quality nesting habitat for wildlife.

The federally threatened California red-legged frog still breeds in the upper reaches of most Bay Area riparian corridors and in the lower reaches within select drainage systems and ponds. The greatest concentrations of this species in the Bay Area occur near Sears Point (North Bay east-west corridor), several drainages and channels that traverse I-580 in the Livermore-Amador Valley (I-580 corridor), and in drainages on the San Francisco Peninsula (Peninsula corridor), though potential habitat may occur elsewhere.

Critical habitat for the California red-legged frog was first designated on March 13, 2001 and included major portions of the East Bay, North Bay, and San Francisco Peninsula. On November 2, 2002, Judge Richard J. Leon signed a consent decree between the USFWS, the Homebuilders Association of Northern California, and El Dorado County that "vacated the final designation of critical habitat of the California red-legged frog, except for units 5 and 31, and remanded a new rulemaking to the USFWS for a revision of the critical habitat." The proposed Transportation 2030 Plan area does not lie within critical habitat units 5 or 31, and is therefore outside of designated critical habitat for this species. Critical habitat was re-proposed on April 13, 2004 using the configuration of the previously published final designation of critical habitat for the California red-legged frog. Portions of the proposed Transportation 2030 Plan area are within proposed critical habitat for this species (see Figure 2.8-1).

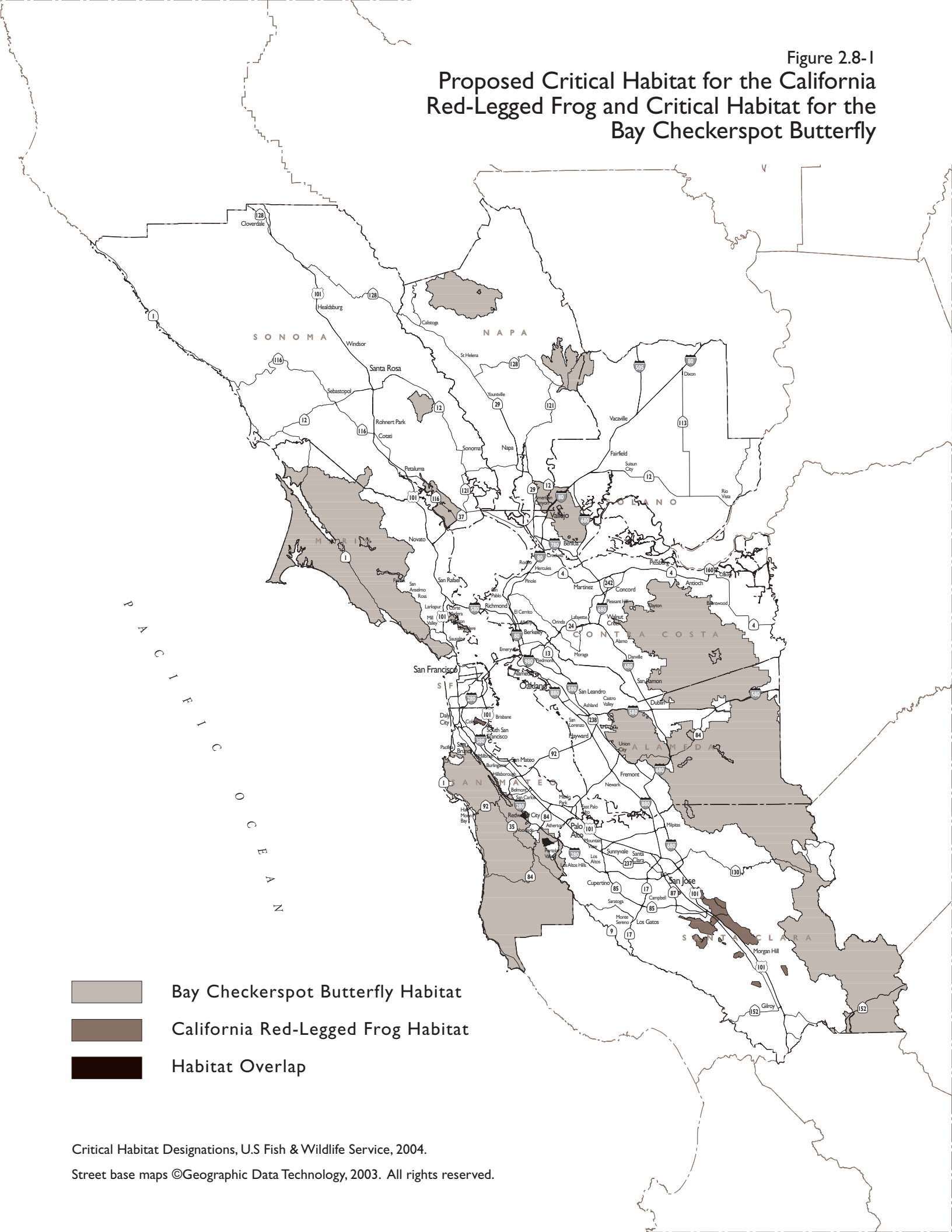
Table 2.8-1: Major Rivers and Creeks in the Bay Area

North San Francisco Bay	
Marin County	**Solano County**
Gallinas Creek	Napa River
Novato Creek	Green Valley Creek
Corte Madera Creek	Putah Creek
Miller Creek	Suisun Creek
Lagunitas Creek	**Sonoma County**
Napa County	Sonoma Creek
Napa River	Petaluma River
Huichica Creek	Santa Rosa Creek
East San Francisco Bay	
Alameda County	**Contra Costa County**
San Leandro Creek	San Pablo Creek
Alameda Creek	
San Lorenzo Creek	
South San Francisco Bay	
Santa Clara County	
Coyote Creek	
Guadalupe River	
Steven's Creek	
Permanente Creek	
Adobe Creek	
San Francisquito Creek	
Los Gatos Creek	
Llagas Creek (drains to the Pacific Ocean via the Pajaro River)	
San Francisco Peninsula	
San Mateo County	**San Francisco City and County**
Cordilleras Creek	None
San Mateo Creek	
Sanchez Creek	

Source: Environmental Science Associates, 2004

Figure 2.8-1

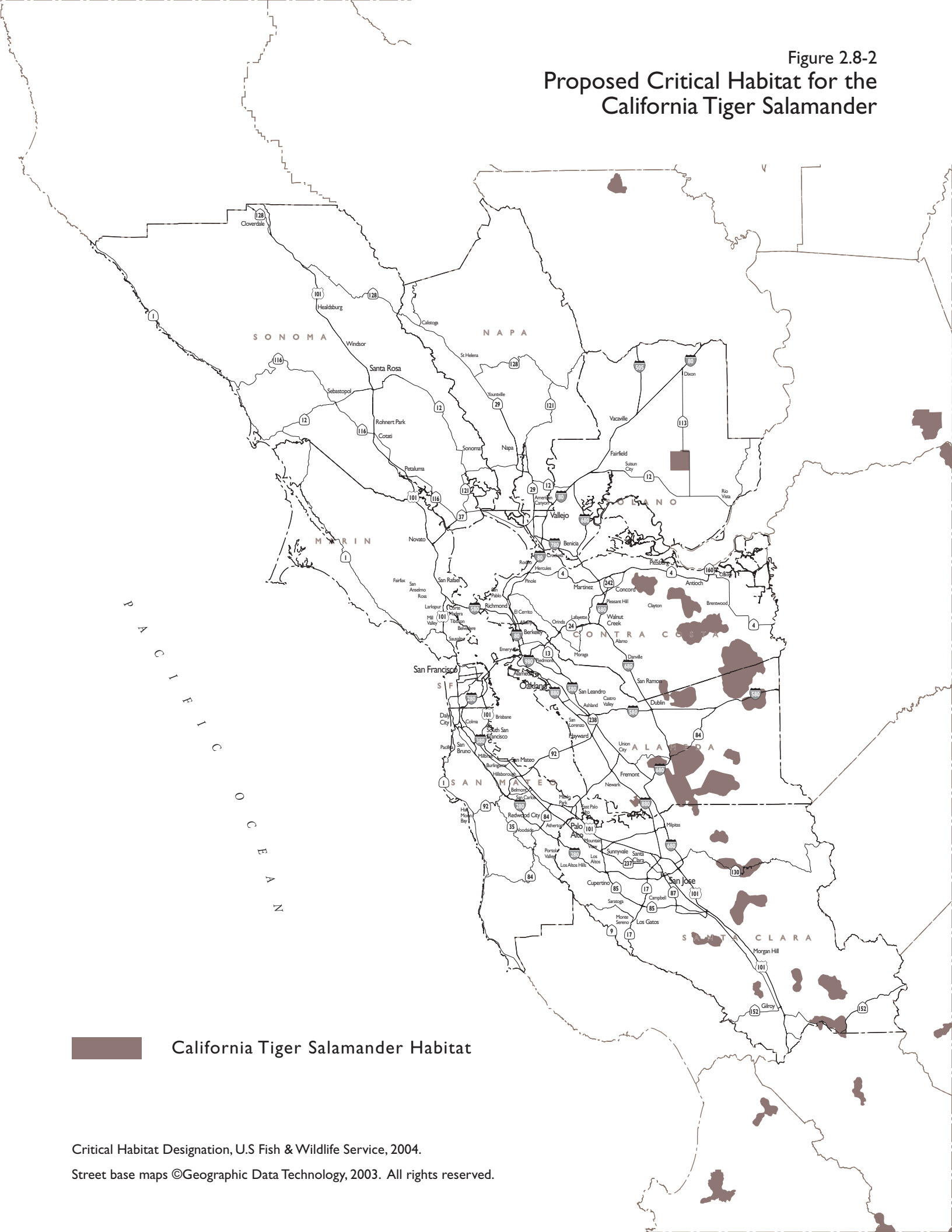
Proposed Critical Habitat for the California Red-Legged Frog and Critical Habitat for the Bay Checkerspot Butterfly



Critical Habitat Designations, U.S Fish & Wildlife Service, 2004.

Figure 2.8-2

Proposed Critical Habitat for the California Tiger Salamander



California Tiger Salamander Habitat

Critical Habitat Designation, U.S Fish & Wildlife Service, 2004.

The foothill yellow-legged frog (*Rana boylii*) occurs in the upper, rocky reaches of some North Bay and inner Coast Ranges streams (e.g., at Sunol Regional Park). Due to the absence of Rocky Mountain streams in the Bay Area, this species is not expected in any of the Transportation 2030 Plan corridors. The federal and state-listed endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) occurs on the San Francisco Peninsula, where riparian habitats meet open water and freshwater marshlands. Habitats within the Peninsula corridor occur in marshlands near San Francisco International Airport (US 101) and in tributary streams to the Crystal Springs Reservoir (I-280). Riparian habitats in the Bay Area may also support small populations of western pond turtle (*Emmys* (=*Clemmys*) *marmorata)*. The federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is dependent upon the elderberry bush (*Sambucus* sp., usually *mexicana*) throughout its entire life history. Elderberry bushes occur statewide and commonly occur in riparian corridors, but may also be present in isolated stands or in woodlands outside riparian habitats. The range of the valley elderberry longhorn beetle includes portions of Solano County (I-80 corridor) and eastern Contra Costa and Alameda counties.

Rivers and Streams

Rivers and streams of the Bay Area have several common ecological attributes:

- As a result of urbanization, many smaller streams on the San Francisco Peninsula, south San Francisco Bay, East Bay, and in portions of the North Bay have been channelized or otherwise developed for flood control or agriculture.

- Most of these waterways are small, seasonal streams, and in the case of urbanized streams, many maintain perennial flows from urban runoff sources during late summer months.

- There are a handful of native streams and rivers in each county that account for the majority of freshwater flows to San Francisco Bay and provide the greatest opportunities for special-status plants and wildlife species.

The Bay Area is drained by many small to mid-sized rivers and creeks spread throughout the region (see Table 2.8-1). The Sacramento River Delta contributes the majority of the freshwater input to San Francisco Bay; however, this discussion concentrates on other tributaries in the region that provide important riverine and aquatic habitat. In the North Bay, the Petaluma River, Sonoma Creek, and Napa River account for much of the freshwater flows into San Pablo Bay.

Relatively smaller, though biologically important contributions are made from Gallinas Creek, Novato Creek, Corte Madera Creek, and Miller Creek in Marin County. In general, there are few impediments or obstructions in these creeks, and the watershed. These tributaries are less channelized, offering habitat for listed native salmonids including coho salmon (central California Evolutionarily Significant Unit, or ESU) and steelhead (central California coast ESU). Solano County watersheds are also relatively undeveloped, including the Putah Creek watershed. Lake Berryessa limits the availability of headwater habitats in Putah Creek to anadromous fish, but this creek still provides valuable aquatic resources.

Stream resources in the East Bay, South Bay, and San Francisco Peninsula have been degraded by urban development, particularly adjacent to and within stream courses. As a result of these changes, only a handful of major streams in these areas support native fisheries and special-status fisheries. These include Alameda Creek, which drains the largely undeveloped watershed of the Sunol Valley and Livermore-Amador Valley, Coyote Creek, Guadalupe River, and Los Gatos Creek in the South Bay, and San Francisquito Creek, Permanente Creek, and San Mateo Creek on the San Francisco Peninsula. In Gilroy and Morgan Hill, Llagas Creek transports flows southward to the Pajaro River. Major dams or other fish impediments that prevent fish from reaching the upper watersheds are present in all of these streams, with the exception of San Francisquito Creek.

Common fish species that have been identified in the lower, freshwater reaches of larger Bay Area creeks can be classified into the Sacramento blackfish – introduced fishes association. Such species include Sacramento perch (*Archoplites interruptus*), splittail (*Pogonichthys macrolepidotus*), hitch (*Lavinia exilicauda*), tule perch (*Hysterocarpus traski*), Sacramento blackfish (*Orthodon microlepidotus*), Pacific lamprey (*Lampetra tridentata*), and Sacramento sucker (*Catostomus occidentalis*). These are often joined by the introduced largemouth bass and smallmouth bass (*Micropterus* spp.), goldfish (*Carassius auratus*), carp (*Cyprinus carpio*), bluegill, and green sunfish (*Lepomis* sp.), which can be found where there is year-round water, as well as mosquitofish (*Gambusia affinis*). Several catfish, including black bullhead (*Ictalurus melas*), brown bullhead (*Ictalurus nebulosus*), and channel catfish (*Ictalurus punctatus*), are widely distributed, especially in the warm lower reaches of Bay Area rivers and creeks. The Sacramento perch and Pacific lamprey are both federal species of concern and California species of special concern.

Habitat for these species occurs primarily in those streams listed in Table 2.8-1, though other streams in the Bay Area can and do support these species. Special-status fish are less common in rivers and streams of the Bay Area. These include the federally listed tidewater goby (*Eucyclogobius newberryi*), coho salmon–central California ESU (*Oncorhynchus kisutch*), steelhead–central California ESU (*Oncorhynchus mykiss*), Chinook salmon (*Oncorhynchus tshawytscha*), and Sacramento splittail (*Pogonichthys lucius*). Several species of limited distribution and rarity occur exclusively in the lower reaches of drainages near and within the Delta, such as longfin smelt (*Spirinichus thaleichthys*) and the state- and federally listed threatened Delta smelt (*Hypomesus transpacificus*). Llagas Creek crosses US 101 in the southern Santa Clara Valley subarea and, though dry seasonally, supports steelhead within the South/Central California ESU.

The federally listed endangered California freshwater shrimp (*Syncaris pacifica*) occurs in low gradient, structurally diverse perennial streams in the northern Bay Area (USFWS, 1998). Of the 17 streams that support this species, those in the Bay Area include Sonoma Creek, the Napa River, and Huichica Creek, which drain to San Pablo Bay; and Laguna de Santa Rosa (Santa Rosa Creek) and its tributaries, which drain to the Russian River. The 1998 Recovery Plan for this species seeks the long-term protection of aquatic and riparian habitat as criteria for species delisting.

Suitable steelhead and coho spawning habitat is found in streams and rivers where there is less development. Steelhead require higher gradient, upper reaches of streams, with access to the

ocean during emigration and spawning, and cool year-round water temperatures for the juveniles' rearing habitat. Steelhead populations are documented from San Francisquito Creek, Guadalupe River, Coyote Creek, Sonoma Creek, Napa River, Putah Creek, and possibly in Alameda Creek. Several small, cool-water drainages in Marin County support coho salmon, which apparently do not successfully reproduce south of the Golden Gate (Fed. Reg., 1999). Steelhead are known to sporadically migrate into and occasionally breed in small streams throughout the Bay Area.

Bridges of various rivers and streams provide nesting opportunities for the nonlisted barn swallow (*Hirundo rustica*) and cliff swallow (*Petrochelidon pyrrhonota*), which are protected under the Migratory Bird Treaty Act. These species build cup- and gourd-shaped nests, respectively, using mud as their primary construction material.

San Francisco Bay Aquatic Resources

The San Francisco Bay and Delta make up the Pacific Coast's largest estuary, encompassing roughly 1,600 square miles of waterways and draining over 40 percent of California's fresh water. The Sacramento and San Joaquin Rivers flow from Northern California's inland valleys into the Delta's winding system of islands, sloughs, canals, and channels, before emptying into San Francisco Bay and the Pacific Ocean. Six project corridors bridge the open waters of San Francisco Bay, and many others are located in close proximity to the Bay.

The marine environment varies widely between the six travel corridors that cross the open waters of the San Francisco Bay. Most of the transbay corridors consist of open water habitat; that is, habitat below the low-tide line (also known as subtidal habitat).

Eelgrass (*Zostera marina*) may occur near the footings of bridges in the transbay corridors and is considered a sensitive habitat by CDFG. Eelgrass is an important habitat for many organisms and may influence benthic community structure by stabilizing sediments, providing forage and detritus food sources, and creating a refuge and nursery for small organisms. Eelgrass beds also provide an important attachment substrate for Pacific herring eggs (USFWS, 1994).

More than 100 species of fish are described from the San Francisco Bay system (USFWS, 1983). The majority of these are native species that live year-round in San Francisco Bay, though a few, such as striped bass (*Morone saxatilis*), have been introduced. Anadromous fish use San Francisco Bay seasonally during their migrations to and from spawning grounds throughout the Bay Area and in the California's Central Valley.

The USFWS recognizes several threatened and endangered species that occur in San Francisco Bay. These include the Steller sea-lion (*Eumetopias jubatus*), the loggerhead sea turtle (*Caretta caretta*), leatherback turtle (*Dermochelys coriacea*), olive ridley sea turtle (*Lepidochelys olivacea*), and several fish species, including coho salmon–central California ESU, steelhead–central California coast ESU, tidewater goby, delta smelt, Pacific lamprey, and Sacramento splittail. The goby, smelt, lamprey and splittail are resident species; the other species, however, are expected to use open water habitats of the bay either seasonally or infrequently.

REGULATORY SETTING

The regulations and policies of various federal and state agencies (e.g., U.S. Army Corps of Engineers [Corps], U.S. Environmental Protection Agency [EPA] and USFWS) mandate protection of wetlands, special-status plant and wildlife species, and aquatic and terrestrial communities in the region. The Corps has primary federal responsibility for administering regulations that concern waters and wetlands, while the USFWS, National Marine Fisheries Service, and the CDFG have lead responsibility for determining potential project effects on federal- and state-listed species and other species of concern. A complete survey of agencies responsible for ensuring compliance with state and federal regulations is provided in Appendix F.

IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

Implementation of the proposed Transportation 2030 Plan would have a potentially significant impact if transportation projects occur in any of the following:

- **Criterion 1: Natural Vegetation.** Areas of natural vegetation, potentially resulting in disruption of wildlife corridors, impediments to native wildlife nurseries, interference of wildlife movement, or threats to designated sensitive plant or animal communities.
- **Criterion 2: Wetlands and Aquatic Resources.** Near or adjacent to wetlands or aquatic resource (i.e., riparian, riverine, coastal, or wetland).
- **Criterion 3: Special-Status Species.** Near or within the designated or known habitat of a special-status plant or animal species.
- **Criterion 4: Resource Plans.** Implementation of the proposed Transportation 2030 Plan would have a potentially significant impact if transportation projects conflict with an adopted resource protection and conservation plan, such as a Habitat Conservation Plan, Natural Community Conservation Plan, or other adopted local, regional, or state habitat conservation plan.

METHOD OF ANALYSIS

Though many of the individual Transportation 2030 Plan projects have not been fully defined and finalized, a general representation of potential regional impacts on biological resources can be generated at this early stage based solely on the location of individual projects relative to the known and potential distribution of sensitive biological receptors. For this impact assessment, the locations of projects in the proposed Transportation 2030 Plan were compared with locations of sensitive species and important habitat areas. Potential impacts were determined by evaluating whether proposed transportation improvements would occur within the potential range of a special-status species of concern, whether the projects would directly encroach upon an area of ecological significance, or whether the projects could involve the filling of wetlands. However, this method is only reliable to a limited degree as many special status species have widespread distribution or are known to freely utilize a variety of habitat types.

Impacts would be more likely to occur where projects could have an effect upon ecologically sensitive or significant areas. Projects involving significant ground-disturbing activity were reviewed with the closest scrutiny, including road widenings, highway extensions, interchange projects, bridges and rail extensions. Resources used to identify these potential impacts included the California Natural Diversity Database, National Wetland Inventory Maps, city and county master plans, published environmental impact reports, or other CEQA/NEPA documents.

In many cases, the project alignments, locations, or other design details are not known because the projects are in the early stages of planning or development. As a result, this impact analysis relies largely on the potential for biological impacts based on proximity to sensitive resources, an analysis method that inherently tends to inflate the potential for adverse effects. Thus, while such impacts may be identified in this EIR, upon project implementation it is anticipated that actual impacts will be incrementally smaller. Laws and regulations protecting special-status species, areas of ecological significance, and wetland resources are effective incentives for project proponents to design alternatives that either avoid or substantially reduce impacts on these resources.

Projects that would not expand transportation-dedicated lands were assumed to have minimal potential biological impacts. These projects include signal and traffic operational improvements, rail extensions along existing rights-of-way, and road widenings in urban areas or within existing rights of way. However, CEQA may require more detailed evaluations on a project-by-project basis to determine the exact resources found within proposed road or rail alignments. Since the specific details of many projects are not yet known, this assessment identifies general locations of potential adverse effects.

SUMMARY OF IMPACTS

The implementation of transportation improvements in the Plan would increase roadway footprints in the Bay Area and could incrementally impact adjacent wetlands, forested areas, grasslands, and other areas and the associated plant and wildlife species. Because the proposed transportation improvements are mainly concentrated along existing transportation corridors, the overall habitat loss and fragmentation is considered lower than if projects were entirely new construction.

Direct Impacts

Short Term Impacts

Short-term impacts resulting from completion of proposed Transportation 2030 Plan improvements include the temporary loss and/or degradation of wetlands, sensitive natural communities, and special-status plant and wildlife species. Such impacts could result from construction disturbances, or from erosion or other indirect project effects. Temporary impacts may include the presence of temporary pile driving equipment in streams or other sensitive areas during bridge construction, short-term fill of wetlands, or the inadvertent release of soils or other materials into a jurisdictional wetland during construction activities.

Long Term Impacts

Direct long-term impacts on sensitive natural communities include effects on both common and special-status plant and wildlife species. This impact is due, in part, to the difficulty in constructing successful habitat replacement for natural areas such as wetlands, riparian forests, and native grasslands. Transportation improvements in the proposed Transportation 2030 Plan that occur within or adjacent to coastal marsh and/or estuarine habitats have the potential to decrease habitat and result in significant long-term impacts on special-status plant and wildlife species. Other proposed transportation projects could also contribute incrementally to habitat loss for special-status plant or wildlife species.

Long-term increases in the volume of vehicular traffic and development of new roads in rural areas are expected to result in increased road casualties to common and special-status wildlife species. This effect would be most pronounced in rural areas, which traverse marshland and grassland habitats. Such changes may also affect the volume of grease, oil, gasoline, and other contaminants entering Bay Area streams and San Francisco Bay and have deleterious effects on fisheries.

Indirect / Cumulative Impacts

Implementation of transportation improvements in the proposed Transportation 2030 Plan could result in indirect biological resource impacts by accommodating new urban development that could have the potential to degrade wetlands and other sensitive natural communities and affect special-status plant and wildlife species. In addition, by improving regional mobility, transportation improvements in the proposed Transportation 2030 Plan, when viewed cumulatively with other regional development projects, could serve planned development of rural environs – east Contra Costa County, southern Santa Clara County, the US 101 corridor in Marin and Sonoma counties, etc. Since these indirect impacts on biological resources are associated with forecast urban development in the Bay Area, they could also be considered a cumulative effect. In addition, other transportation improvements in the proposed Transportation 2030 Plan not identified as having a direct impact on biological resources in the regional context may result in individually minor impacts locally. Collectively, these individually minor impacts on biological resources may become significant over time.

IMPACTS & MITIGATION MEASURES

Impact

2.8-1 Transportation improvements in the proposed Transportation 2030 Plan could adversely affect wetlands and aquatic resources. (*Significant, mitigable*)

Impacts include the temporary disturbance to or permanent loss of wetlands or wetland functioning, incremental degradation of wetland habitats, or segmentation of habitats. Wetland resources in the immediate vicinity of proposed transportation improvements vary from relatively small, isolated roadside areas, wet meadows, and vernal pools to major streams and

rivers, and vegetated shorelines. Any fill of significant wetland habitats associated with proposed transportation improvements would be considered a significant impact.

In addition to the direct loss of habitat, implementation of proposed transportation projects could increase the potential for stormwater runoff to carry a variety of pollutants into wetlands, rivers, streams, and San Francisco Bay. Construction runoff often carries grease, oil, and heavy metals (due to ground disturbance) into natural drainages. Furthermore, particulate materials generated by construction could be carried by runoff into natural waterways and could increase sedimentation impacts. Based on the comprehensive project list, 83 projects were identified that have the potential to directly impact wetlands by direct fill, shading, or otherwise. The wetland impact assessment in Table 2.8-2 was developed based on project proximity to blueline streams and other wetlands, where the proposed project either intersects, bridges, or could otherwise impact a jurisdictional wetland feature. Because the list focuses on major mapped wetlands some smaller features that could be impacted may not be reflected. Also, conversely, because proximity of a project to a wetland is a poor indicator of actual impacts, the list may overstate the number of projects that will impact wetlands.

Mitigation Measures

In accordance with guidelines of the U.S. Army Corps of Engineers (Corps), the U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Game (CDFG), a goal of "no net loss" of wetland acreage and value will be implemented, wherever possible, through avoidance of the resource.

2.8(a) In keeping with the no net loss policy, project designs shall be reconfigured, whenever possible, to avoid sensitive wetlands and avoid disturbances to wetland and riparian corridors. Projects shall minimize ground disturbances and construction footprints near such areas to the extent practicable.

Mitigation for wetland impacts due to the transportation projects would be based on project-specific wetland mitigation plans, subject to approval by the Corps, and possibly by the USFWS, RWQCB, and CDFG as well. Mitigation for placing fill in wetlands would be partially achieved by avoiding wetlands and by minimizing fill where avoidance is not feasible. Individual projects shall minimize the use of in-water construction methods to reduce impacts to wetlands, and only do so with express permit approval from the appropriate resources agencies.

Avoidance, compensatory restoration, or creation of new wetland communities to offset the conversion of wetlands for proposed transportation improvements would achieve "no net loss" of wetland acreage and value. Implementing the above mitigation on a site-by-site basis would reduce project effects to a less-than-significant level.

Impact

2.8-2 Transportation improvements in the proposed Transportation 2030 Plan could cause substantial disturbance of biologically unique or sensitive communities that are regulated by CDFG. ***(Significant, mitigable)***

Proposed transportation projects located near or adjacent to protected plant communities could cause an incremental loss of these community types and would constitute a significant impact. State-protected vegetation or natural communities in the region include serpentine chaparral, northern maritime chaparral, coastal terrace prairie, serpentine bunchgrass, freshwater seeps, northern coastal salt marsh, coastal brackish marsh, coastal freshwater marsh, riparian forest (several), California bay forest, and eelgrass beds (Holland, 1986). In general, the proposed projects are not located in areas that support sensitive communities that are regulated by CDFG; however, several relatively widespread plant communities including sycamore and willow-dominated riparian (wetland-associated) habitats, and vegetated stream channels are also regulated by CDFG. Because they are often associated with jurisdictional wetlands, impacts on sensitive plant communities are often covered during the permitting process. However, the permitting process would not address impacts on upland communities such as serpentine bunchgrass or coastal terrace prairie. Impacts on such communities would be addressed in coordination with CDFG. The magnitude of this impact within the project area is not known, but is likely similar to the level of impact anticipated in Impact 2.8-1 for wetlands, which identifies 83 sites where a potential impact may occur. Impacts on sensitive upland communities are not known, but would likely be minor because such communities are not common in developed portions of the Bay Area.

Mitigation Measures

2.8(b) In accordance with CDFG guidelines, project sponsors shall make an effort to minimize impacts on sensitive plant communities, especially riparian habitats, when designing and permitting projects. Where applicable, projects shall conform to the provisions of special area management or restoration plans such as the Suisun Marsh Protection Plan, which outline specific measures to protect sensitive vegetation communities.

Implementing the above mitigation on a site-by-site basis would reduce project effects to a less-than-significant level.

Impact

2.8-3 Proposed transportation improvements in the proposed Transportation 2030 Plan could have deleterious impacts on special-status plant and/or wildlife species identified as endangered, candidate, and/or special status by the CDFG or USFWS. ***(Significant, unavoidable)***

For the purposes of this analysis, unless known to be absent, special-status species are presumed present in all areas that provide at least moderate quality habitat. Special-status species with the greatest potential to be impacted by projects in the proposed Transportation 2030 Plan are listed

in Table F-1 in Appendix F. Table 2.8-2 lists 80 projects that have the potential to impact special status plant or wildlife species. This list of projects was generated based on project proximity to known sensitive habitats, GIS-based maps showing USFWS proposed or designated critical habitat (USFWS, 2004a; 2004b), and the CNDDB (2004).

Potential effects on special-status species include the temporary removal of vegetation and habitat, direct mortality from equipment, loss or degradation of designated critical habitat, entrapment in open trenches, and general disturbance due to noise or vibration during pile-driving, earthmoving, and other construction activities. Additional impacts on special-status species could occur as a result of habitat fragmentation, increased human intrusion, erosion, introduction of invasive species, disruption of migratory corridors, sedimentation, filling and disturbance of aquatic habitats, and general reduction in biological diversity.

Mitigation Measures

2.8(c) At the time of project certification, project sponsors shall agree to comply with mitigation measures to protect special-status plant and wildlife species. This requirement obligates project sponsors to implement measures that avoid, minimize, and compensate for significant impacts on special-status species and their habitat. Typical measures that may be included by project sponsors include:

1. In support of CEQA, NEPA, and CDFG and USFWS permitting processes for individual Transportation 2030 Plan transportation projects, biological and wetland surveys shall be conducted as part of the environmental review process to determine the presence and extent of sensitive habitats and/or species in the project vicinity. Surveys shall follow established methods and shall be undertaken at times when the subject species is most likely to be identified. In cases where impacts to state- or federal-listed plant or wildlife species are imminent, formal protocol-level surveys may be required on a species-by-species basis to determine the local distribution of these species. Consultation with the USFWS and/or CDFG shall be conducted at an informal level for transportation projects that could adversely affect federal or State candidate, threatened, or endangered species to determine the need for further consultation or permitting actions.
2. Project designs shall be reconfigured, whenever possible, to avoid sensitive wetland or biological resources and avoid disturbances to wetland and riparian corridors. Projects shall minimize ground disturbances and construction footprints near sensitive areas to the extent practicable.
3. To the extent practicable, project activities in the vicinity of sensitive resources shall be completed during the period that best avoids disturbance to plant and wildlife species present (e.g., May 15 to October 15 near salmonid habitat and vernal pools).
4. Individual projects shall minimize the use of in-water construction methods in areas that support sensitive fish species, especially when fish are present.
5. In the event that equipment needs to operate in any watercourse with flowing or standing water, a qualified biological resource monitor shall be present at all times to alert

construction crews to the possible presence of California red-legged frog, nesting birds, salmonids, or other aquatic species at risk during construction operations.

6. Construction periods shall not occur during the breeding season near riparian habitat, freshwater marshlands, and salt marsh habitats that support special-status nesting bird species (e.g., yellow warbler, tricolored blackbird [Agelaius tricolor], or California clapper rail).
7. A qualified biologist shall locate and fence off sensitive resources before construction activities begin and, where required, shall inspect areas to ensure that barrier fencing, stakes, and setback buffers are maintained during construction.
8. For work sites located adjacent to special-status plant or wildlife populations, a biological resource education program shall be provided for construction crews and contractors (primarily crew and construction foremen) before construction activities begin.
9. Biological monitoring shall be particularly targeted for areas near identified habitat for federal- and state-listed species, and a "no take" approach shall be taken whenever feasible during construction near special-status plant and wildlife species.

The implementation of the above mitigation measures may not eliminate or reduce the impacts of individual projects to a less-than-significant level. Impacts on special-status wildlife species as a result of transportation infrastructure improvements are considered significant and unavoidable.

Impact

2.8-4 Proposed transportation improvements in the proposed Transportation 2030 Plan could have deleterious impacts on proposed or designated critical habitats. ***(Adverse, but not significant)***

Approximately 25 transportation projects traverse areas that are proposed by the USFWS as critical habitat for California tiger salamander and/or California red-legged frog. Impacts on proposed critical habitat consist of permanent or temporary modification or loss of areas that have high conservation value for listed amphibians. Impacts could also include the introduction of additional vehicular or recreational pressures where they do not currently exist. The overall effect of the proposed projects upon critical habitats is considered less-than-significant because the projects are proposed throughout the region and are only located on the fringes of designated habitat units. In all, impacts on critical habitat would mostly occur as a result of projects that define the boundaries of the critical habitat unit, that would be expanded into the unit, for example, in the case of a road widening project.

Mitigation Measures

Specific projects that may be located within critical habitat areas will be subject to established protocols for surveys and protective measures. No further mitigation measures are required.

Impact

2.8-5 Construction activities could adversely affect nonlisted nesting raptor species. *(Significant, mitigable)*

Nesting habitat for several nonlisted raptor species could occur near a number of proposed transportation projects. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "taking" by the CDFG and would be considered a significant impact. Nesting habitat for northern harrier, white-tailed kite, Cooper's hawk, and sharp-shinned hawk are present in grasslands and riparian habitats in the MTC region. Additionally, red-shouldered hawk, red-tailed hawk, American kestrel, barn owl, great horned owl, and western screech owl may breed in riparian habitats. Nesting habitat for golden eagle may occur in open grasslands of the Diablo Range and Vaca Range in Napa, Solano, Contra Costa, and Alameda Counties.

Mitigation Measures

2.8(d) At the time of project certification, project sponsors shall agree to comply with mitigation measures to avoid and minimize impacts to nesting raptors. Typical measures that may be included by project sponsors include:

1. To avoid and minimize impacts to nesting raptors, preconstruction surveys would be performed prior to initiating construction activities during the breeding season (February 1 through August 31). If it is determined that young have fledged and are self-sufficient, no further mitigation would be required.
2. To avoid and minimize potential impacts to nesting raptors, a no-disturbance buffer zone would be established around active nests during the breeding season.
3. The size of individual buffers could be adjusted based on an evaluation of the site by a qualified raptor biologist.

Implementing the above mitigation measures would allow early recognition of nesting raptors in and near work areas and avoid impacts to these species. Following implementation of seasonal avoidance methods, this impact is considered less than significant.

Impact

2.8-6 Construction activities could impact nonlisted nesting birds species protected under the federal Migratory Bird Treaty Act. *(Significant, t mitigable)*

Nesting habitat for nonlisted birds protected under the federal Migratory Bird Treaty Act occurs in woodlands, riparian areas, and other areas, and may occur near some MTC projects. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment, and would be considered a significant impact.

Mitigation Measures

At the time of project certification, project sponsors shall agree to comply with mitigation measures to avoid impacts to nesting bird species protected under the federal Migratory Bird Treaty Act, as follows:

> 2.8(e)Concurrent with surveys described in Mitigation Measure 2.8(d), surveys shall be performed for migratory birds listed in the federal List of Migratory Birds (50 Code of Federal Regulations, Chapter 1, Part 10 §10.13). More than 500 native and migratory bird species are protected by this statute. If protected breeding birds are detected during surveys, a buffer zone, depending upon the species identified, shall be established around active nesting sites in coordination with CDFG.

This mitigation measure would be expected to reduce this potentially significant impact on nonlisted nesting bird species protected under the federal Migratory Bird Treaty Act to a less-than-significant level if incorporated by project sponsors.

Impact

2.8-7 Implementation of the proposed Transportation 2030 Plan could impact adopted resource protection or conservation plans. ***(No adverse impact)***

No adopted resource management plans have been developed or apply to lands that are currently considered in this EIR, therefore no conflicts exist with such plans. If such plans were developed at a later time, proposed Transportation 2030 Plan projects that are within resource planning areas would be assessed on an individual basis to ensure consistency with adopted plans. As such, no impact is anticipated.

Cumulative Impact

2.8-8 Forecast urban development that would be served by transportation improvements in the proposed Transportation 2030 Plan, combined with improved regional mobility provided by the Plan, could contribute to the conversion of undeveloped land to urban uses, resulting in the removal or fragmentation of habitat area. ***(Significant, unavoidable)***

Future proposed Transportation 2030 Plan implementation combined with forecast urban development in the Bay Area would result in the conversion of currently undeveloped and rural land development. This cumulative scenario, along with other infrastructure improvements, would have significant cumulative regionwide impacts on biological resources. Areas that would be affected include the portions of the North Bay (Napa, Solano, and Sonoma Counties), and Contra Costa, Alameda and Santa Clara counties. Potential cumulative effects include the hastened incremental loss and urbanization of habitat for the California red-legged frog, and California tiger salamander, among other species.

In addition, other transportation improvements in the proposed Transportation 2030 Plan not identified as having a direct impact on biological resources in the regional context may result in individually minor impacts locally. Collectively, these individually minor impacts on biological resources may become significant over time.

Mitigation Measures

As the cumulative impacts of the transportation improvements in the proposed Transportation 2030 Plan are the same as the direct impacts listed above, the mitigation measures for this impact would also be the same. Generally, these mitigation measures would be expected to reduce this potentially significant cumulative impact on biological resources to a less-than-significant level if incorporated by project sponsors. However, similar to the proposed project direct impacts on sensitive species (Impact 2.8-3), potential cumulative impacts on special status wildlife species would be significant and unavoidable.

Table 2.8-2: Projects that Could Potentially Impact Wetlands, Special Status Plant or Wildlife Species, or Designated or Proposed Critical Habitat

				Impacts By Project		
Corridor	*Project ID*	*Investment**	*Description*	*Wetlands*	*Special Status Plants or Wildlife*	*Designated or Proposed Critical Habitat*
Delta	98222	N	Rte 4 Bypass, Segment 1: Rte 160 fwy-to-fwy connectors	X	X	X
Delta	98999	N	Widen Rte 4 Ebound from to 8 lns from Somersville Rd to Rte 160	X	X	
Delta	22604	V	Construct safety and operational impvts on Vasco Rd from Brentwood to Alameda Co line	X	X	X
Delta	22605	V	Rte 4 Bypass: widen and upgrade to full fwy	X	X	X
Delta	22981	V	Widen Rte 4 as continuous 4-ln arterial from Marsh Creek Rd to San Joaquin Co line	X	X	
Diablo	21206	N	Caldecott Tunnel fourth bore		X	
Diablo	22602	N	Construct I-680 aux lanes in both directions from Sycamore Valley Rd to Crow Canyon Rd	X		
Diablo	98130	N	Widen Alhambra Ave from Rte 4 to McAlvey Dr to 4 lns	X		
Diablo	98133	N	Widen Pacheco Blvd from Blum Rd to Arthur Rd to 4 lns		X	
Diablo	22614	V	Martinez Intermodal Station	X	X	
Eshore-N	22624	C	Construct continuous 4-ln Jepson Pwy from Suisun City to Vacaville	X	X	
Eshore-N	22629	C	New Vallejo Ferry Terminal intermodal facility	X	X	
Eshore-N	22986	C	Widen Broadway /b/ Rte 37 and Mini Dr to 4 lns	X		
Eshore-N	22700	N	Construct parallel corridor N of I-80 from Red Top Rd to Abernathy Rd	X	X	
Eshore-N	22898	N	Widen I-80 from W of Meridian Rd to W of Kidwell Rd to 8 lanes		X	
Eshore-N	94151	N	Construct 4-ln Jepson Pwy from Rte 12 to Leisure Town Rd	X	X	X
Eshore-N	22660	V	Widen I-880 /b/ Whipple and Jackson	X		

Table 2.8-2: Projects that Could Potentially Impact Wetlands, Special Status Plant or Wildlife Species, or Designated or Proposed Critical Habitat

				Impacts By Project		
Corridor	*Project ID*	*Investment**	*Description*	*Wetlands*	*Special Status Plants or Wildlife*	*Designated or Proposed Critical Habitat*
Eshore-N	22670	V	Widen I-880 for HOV lanes Nbound from Hacienda overcrossing to 98th Ave and Sbound from 98th Ave to Marina Blvd	X		
Freemont	22991	C	Widen I-680 for Sbound HOV/HOT ln from Rte 237 to Rte 84	X	X	X
Freemont	21132	N	BART extn to Warm Springs	X	X	
Freemont	22042	N	Widen I-680 for Nbound HOV ln from Rte 237 to Stoneride Dr	X	X	X
Freemont	22779	N	Rte 262/Warren Ave/ I-880 I/C impvts	X	X	
Freemont	22805	N	Widen Dixon Landing Rd to 6 lns /b/ N Milpitas Blvd and I-880	X	X	
Freemont	22990	N	Widen Rte 262 from I-880 to Warm Springs Blvd reconstruct Union Pacific RR underpasses	X	X	
Freemont	22668	V	Add Nbound and Sbound I-680 HOV lns /b/ Rte 84 in Alameda Co to Alcosta Blvd in Contra Costa Co	X	X	X
Freemont	22800	V	BART extn into Santa Clara Co	X	X	
Golden	22655	C	Widen US 101 for HOV lns from Rohnert Park Expwy to Santa Rosa Ave	X	X	X
Golden	21902	N	Widen US 101 for HOV lns from Old Redwood Hwy to Rohnert Park Expwy	X	X	
Golden	98147	N	Widen US 101 from Rte 116 E to the Marin/Sonoma Co line from to 6 lns, upgrade Petaluma Bridge, and convert some hwy sections to fwy standards	X	X	
Golden	98154	N	Widen US 101 from Rte 37 to the Sonoma Co line from to 6 lns and convert some hwy sections to fwy standards	X	X	
Golden	98183	N	Widen US 101 for HOV lns /b/ Steele Ln and Windsor River Rd	X		
Golden	21030	V	I-580/US 101I/C impvts and new fwy-to-fwy connectors from Wbound I-580 to Nbound and Sbound US 101			
Golden	21317	V	Widen Rte 1 from US 101 to Flamingo Rd	X	X	
Golden	22206	V	Construct Rte 12/Fulton Rd I/C		X	
Golden	22207	V	Ext Farmers Ln as from Bellevue Ave to Rte 12	X	X	
Golden	22419	V	Widen US 101 for HOV lns from Lucky Dr to N San Pedro Rd	X		
Golden	22513	V	SMART commuter rail construction	X	X	
NBay E/W	22626	C	Rte 29/Rte 37 I/C impvts	X	X	
NBay E/W	22899	C	Widen Rte 12 between Suisun City and Rio Vista to 4 lns	X	X	
NBay E/W	94074	N	Widen Rte 12 (Jamieson Canyon) from I-80 in Solano County to Rte 29 in Napa Co to 4 lns	X	X	X

Table 2.8-2: Projects that Could Potentially Impact Wetlands, Special Status Plant or Wildlife Species, or Designated or Proposed Critical Habitat

				Impacts By Project		
Corridor	*Project ID*	*Investment**	*Description*	*Wetlands*	*Special Status Plants or Wildlife*	*Designated or Proposed Critical Habitat*
NBay E/W	94075	N	Rte 12/Rte 29/Airport I/C construction	X	X	
NBay E/W	94152	N	Widen Rte 12 (Jameson Canyon) from I-80 in Solano County to Rte 29 in Solano Co from to 4 lns	X	X	X
Peninsula	21613	N	Rte 92 impvts from San Mateo Bridge to I-280	X	X	X
Peninsula	21619	N	Caltrain express tracks	X	X	
Peninsula	22282	N	Widen US 101 Sbound by adding 5th ln from Wbound Rte 92 loop on-ramp to Ralston Ave off-ramp	X		
Peninsula	98203	N	Study of Rte 1 in Half Moon Bay area operational and safety impvts	X	X	X
Peninsula	22271	V	Widen Skyline Blvd (Rte 35) to 4-ln roadway from I-280 to Sneath Ln	X	X	X
Peninsula	22724	V	Improve Rte 92 from San Mateo Bridge to I-280 (Phase 2)	X	X	X
Peninsula	22729	V	I-280 aux lns from I-380 to Hickey Blvd	X		
Peninsula	22751	V	Rte 1 operational and safety impvts in Half Moon Bay area	X	X	X
Peninsula	94644	V	Rte 92 Wbound slow vehicle ln /b/ Rte 35 and I-280	X	X	X
Peninsula	21610	V	US 101 aux lns from San Bruno Ave to Grand Ave	X		
Silicon	21713	N	Construct aux ln on Ebound Rte 237 from N First St to Zanker Rd	X	X	
Silicon	21716	N	Widen Rte 237 from to 6 lns for HOV lns /b/ Rte 85 and Eof Mathilda Ave	X		
Silicon	21717	N	Widen Rte 25 from US 101 to Rte 156 from to 6 lns	X	X	
Silicon	21718	N	Rte 85 Nbound and Sbound aux lns /b/ Homestead Ave and Fremont Ave	X		
Silicon	22012	N	Rte 237 Ebound aux ln impvt from N First St to Zanker Rd		X	
Silicon	22118	N	Ext Hill Rd to Peet Ave		X	
Silicon	22134	N	Widen US 101 Sbound from Story Rd to Yerba Buena Rd			X
Silicon	22138	N	Widen US 101 to 4 lns from Rte 25 to Santa Clara/San Benito Co line	X	X	
Silicon	22140	N	Widen US 101 /b/ Cochrane Rd and Monterey Hwy from to 8 lns	X	X	
Silicon	22153	N	Ext Mary Ave N across Rte 237	X	X	
Silicon	22175	N	Widen Almaden Expwy /b/ Coleman Rd and Blossom Hill Rd to 8 lns	X	X	
Silicon	22176	N	Widen Berryessa Road from I-680 to Commercial St to 6 lns	X	X	
Silicon	22177	N	Widen Branham Ln from Vista Park Dr to Snell Ave to 6 lns	X	X	

Table 2.8-2: Projects that Could Potentially Impact Wetlands, Special Status Plant or Wildlife Species, or Designated or Proposed Critical Habitat

				Impacts By Project		
Corridor	*Project ID*	*Investment**	*Description*	*Wetlands*	*Special Status Plants or Wildlife*	*Designated or Proposed Critical Habitat*
Silicon	22185	N	Widen Oakland Rd to 6 lns from US 101 to Montague Expwy	X	X	
Silicon	22823	N	Widen Snell Ave to 6 lns from Branham Ln to Chynoweth Ave		X	
Silicon	22832	N	Widen Rte 152 to 4 lns from Miller Slough to Holsclaw Rd	X	X	
Silicon	22834	N	Widen Rte 237 for Ebound aux ln from Mathilda Ave to Fair Oaks Ave		X	
Silicon	22857	N	Widen US 101 for a Sbound aux ln from I-880 to McKee Rd/Julian St	X	X	
Silicon	22871	N	Ext 2-ln Uvas Park Dr from Laurel Dr to Wren Ave	X	X	
Silicon	22885	N	Ext Los Gatos Creek Trail on W side from Hamilton Ave to Campbell Ave	X	X	
Silicon	22886	N	Widen McKean Rd shoulders to accommodate bicycle impvts	X	X	X
Silicon	22887	N	Widen S side of Moody Rd from Elena Rd Wbound by 1,500 feet to accommodate bicycle and pedestrian impvts	X	X	
Silicon	22888	N	Widen King Rd to 4 lns from Aborn Rd and Barberry Ln		X	
Silicon	22892	N	Widen US 101 Sbound aux ln from Great America Pwy to Lawrence Expwy		X	
Silicon	22893	N	Widen US 101 for a Nbound aux ln from McKee/Julian St to I-880	X	X	
Silicon	98103	N	Construct aux ln on Nbound Rte 17 from Camden Ave to Hamilton Ave	X	X	
Silicon	98175	N	Widen Montague Expswy from 6 lns to 8 lns (6 mixed-flow and 2 HOV lns) from I-680 to US 101	X	X	
Silicon	21770	V	Ext Caltrain from Gilroy to Salinas	X	X	
Silicon	22091	V	Upgrade Rte 152 to a limited access 4-ln fwy	X	X	X
Silicon	22130	V	Rte 85 Nbound and Sbound aux lns from Saratoga Ave to Winchester Blvd	X		
Silicon	22158	V	Rte 85 aux lns between Fremont Ave and El Camino Real	X		
Silicon	22945	V	Construct Aldercroft Creek Bridge on Old Santa Cruz Hwy	X	X	
Silicon	22960	V	Widen Almaden Rd from Malone Rd to Curtner Ave to accommodate pedestrians	X	X	
Silicon	22965	V	US 101/Mabury Rd/Taylor Street I/C construction	X	X	
Silicon	22983	V	US 101/Zanker Rd/Skyport Dr/Fourth St I/C construction		X	
Sonoma Co-wide	22192	V	Widen Airport Blvd to 4 lns	X	X	

Table 2.8-2: Projects that Could Potentially Impact Wetlands, Special Status Plant or Wildlife Species, or Designated or Proposed Critical Habitat

				Impacts By Project		
Corridor	*Project ID*	*Investment**	*Description*	*Wetlands*	*Special Status Plants or Wildlife*	*Designated or Proposed Critical Habitat*
Sunol	22897	N	Widen I-680 Nbound for an HOV ln from Rte 84 to Calavaras Blvd	X	X	X
Sunol	98139	N	ACE station/track impvts in Alameda Co	X	X	X
Transbay Bridge	22002	N	Ext HOV ln on I-880 Nbound from existing HOV terminus at Bay Bridge approach to Maritime on-ramp	X	X	
Tri-Valley	22796	C	Construct 4-ln arterial connection /b/ future E end of Dublin Blvd in Dublin to N Canyons Pwy in Livermore	X	X	X
Tri-Valley	22013	N	I-580 corridor impvts	X	X	X
Tri-Valley	22776	N	Widen Rte 84 to 4 lns from N of Pigeon Pass to Vineyard Ave and to 6 lns from Vineyard Ave to Jack London Blvd	X	X	X
Tri-Valley	22664	V	I-580 HOT lns from Greenville Rd west to I-680	X	X	
Tri-Valley	22666	V	Rte 84 HOT lns in Tri-Valley	X	X	X

Source: ESA; CNDDB, 2004; USFWS, 2004a; USFWS, 2004b

* *C=Committed Project, N=New Commitment Project, V=Vision Element Project*

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2.9 Visual Resources

The San Francisco Bay Area contains some of the most recognizable natural and built views in the world. Important views of natural features include the Pacific coast, San Francisco Bay, Mount Tamalpais, Mount Diablo, and other peaks and inland valleys of the Coast Range. Enclosed views like those along roads winding through redwood groves, and broader views of the ocean and lowlands, such as along ridgetops, are in abundance in the Bay Area. Cityscape views offered by buildings and distinctive Bay Area bridges are also important built visual resources to the region. Transportation facilities have the potential to affect both what is seen and how it is seen.

This chapter describes the visual resources of the San Francisco Bay Area and the impacts that projects in the proposed Transportation 2030 Plan could have on those resources. This analysis focuses specifically on views from the road and transit corridors and on views from public viewing areas and existing land uses along travel corridors.

ENVIRONMENTAL SETTING

PHYSICAL SETTING

The landscapes of the San Francisco Bay Area are varied, unique, and recognized by many in the region and beyond. The basin formed by the coastal range, East Bay Hills, and the Bay itself are prominent physical features of the region. To the west the Pacific Ocean and the Coastal Range, stretching from Mt. Tamalpais in the north to the Santa Cruz Mountains in the south, dominate the visual setting. To the east the Diablo Range, dramatically punctuated by Mount Diablo, provides a much different character. In the north, the vineyards of Napa and Sonoma counties are unique and draw visitors from around the world. Many built features in the Bay Area, the Golden Gate and Bay Bridges and the San Francisco skyline in particular, are also of international renown. Bay Area residents and tourists alike treasure the variety and quality of the visual experiences that are found along many transportation corridors in the region, from heavily traveled freeways, transit lines, and ferries, to narrow country roads through secluded forests and agricultural areas. Major transportation projects may affect the visual experiences of travelers and the distinctive visual environment of the region.

The variety of natural features, their topographic variation and the different types of development provide the Bay Area with significant visual resources. The Bay Area sits along the Pacific coast with several branches of the Coast Range dividing it into valleys, plains and water bodies. The largest of these valleys contains San Francisco Bay while at the eastern edge of the region is the great Central Valley, an extremely flat plain lying between the Coast Range and the Sierra Nevada Mountains. The hills of the Coast Range provide expansive views of the valleys and plains below, revealing a variety of development types, including urban areas along the Bay plains and inland valleys, agricultural lands and protected open space, and natural areas.

Hills and Valleys

The region contains several distinct ranges and hills. Between the Pacific Ocean and San Francisco Bay lie the coastal hills of San Mateo, Santa Clara, and Marin Counties. The East Bay Hills rise steeply from the urbanized plain along the eastern edge of the Bay forming a several mile wide band that also defines the western edge of the Diablo and Livermore Valleys of Contra Costa and Alameda Counties. The rolling hills of the Diablo Range separate these valleys from the lowlands of the Central Valley. At the south end of the Bay Area in Santa Clara County, these hills converge. To the north, several ranges frame the Napa, Sonoma and Cotati valleys.

Between these ranges and hills are numerous valleys, both broad and narrow. San Francisco Bay, for example, is bordered along the east and west by a narrow, heavily urbanized plain. This plain widens in the south into the Santa Clara Valley, which until World War II was primarily agricultural. The East Bay and coastal hills, which are visible throughout these lowlands, orient the traveler and give a sense of scale to the surrounding urban areas. Likewise to the north, the hills forming the Sonoma, Napa, and Cotati Valleys enclose these agricultural areas with urban pockets.

Landmarks and Gateways

Certain features of the Bay Area stand out as symbols and points of orientation. These landmarks include the Golden Gate and Bay Bridges, San Francisco skyline, several large buildings in the East Bay Hills (the Campanile on the U.C. Berkeley campus, the Claremont Hotel and the Mormon Temple in Oakland, for example), and Mount Saint Helena at the northern end of the Napa Valley. These landmarks help travelers to locate themselves within the region, and in the case of the Golden Gate Bridge, symbolize the Bay Area for the rest of the world.

Likewise, several points along the roadways and rail lines of the Bay Area serve as visual gateways to the region or parts of it. The rest area on I-80 above Vallejo, the west end of the Caldecott Tunnel, and "hospital curve" along Highway 101 in San Francisco offer dramatic views of notable Bay Area landscapes.

Views from Transportation Corridors

Many roadways and rail lines provide expansive, regional views of surrounding areas, often due to their wide rights-of-way, location along high points, elevation of the facilities, or a combination of these factors. Examples include I-280 along the Peninsula, Highway 92 as it crosses the coastal range, I-80 near Rodeo, I-580 over the Altamont Pass and above Oakland, and the Route 24 corridor. The bridges crossing San Francisco Bay and the San Joaquin River offer similar experiences. Both the Bay and Golden Gate Bridge provide world-famous views of San Francisco while the Richmond-San Rafael Bridge includes sweeping views of the North Bay, including Mount Tamalpais and Angel Island. The Antioch Bridge allows views out over the Sacramento Delta.

Similarly, rail facilities (including BART) can provide travelers with broad views of the region or portions of it. The elevated BART lines through the East Bay, for example, give good views of the East Bay Hills and the neighborhoods of Oakland, Berkeley, El Cerrito, etc. The Amtrak rail lines

along San Pablo Bay and the San Joaquin River also provide broad views of the water with the hills beyond.

Roads and rail lines also provide more intimate views of forested hills or narrow valleys. Highway 35 (along the crest of the San Mateo Peninsula) and Highway 84 (through the narrows of Niles Canyon) are examples of such views. Similarly, Highway 1 and Sir Francis Drake Boulevard run through the forests and grasslands of Marin County to the beaches, parks, and open space areas along the coast. Highway 29 and the Silverado Trail through the Napa Valley and Highway 12 through the Sonoma Valley provide dramatic views of enclosing hills, adjoining vineyards, and the wineries.

Finally, while carrying only a small portion of the region's travelers, the use of the Bay ferries can be attributed, in part, to the spectacular viewing experiences afforded by this mode of transport.

Views of the Road

While roads and rail lines can provide access to view for travelers, these facilities can also detract from or block views for others, particularly those who live or work near such facilities. A new or expanded roadway along a hillside can be visible from a great distance, changing the impression of the hillside for the viewer, particularly if the hillside is undeveloped. Also, new roads and rail lines are often built above the level of existing development, which can overshadow nearby homes and businesses and limit views from them to the surrounding hills and valleys.

REGULATORY SETTING

Scenic Roads

Recognizing the value of scenic areas and the value of views from roads in such areas, the State Legislature established the California Scenic Highway Program in 1963. This legislation sees scenic highways as "a vital part of the all encompassing effort…to protect and enhance California's beauty, amenity and quality of life." Under this program, a number of State highways have been designated as eligible for inclusion as scenic routes. Once the local jurisdictions through which the roadway passes have established a corridor protection program and the Departmental Transportation Advisory Committee recommends designation of the roadway, the State may officially designate roadways as scenic routes. Interstate highways, state highways, and county roads may be designated as scenic under the program. *The Master Plan of State Highways Eligible for Official Scenic Highway Designation* maps designated highway segments, as well as those that are eligible for designation. Changes to the map require an act of the legislature.

As noted, a corridor protection program must be adopted by the local governments with land use jurisdiction through which the roadway passes as the first step in moving a road from "eligible" to "designated" status. Each designated corridor is monitored by the State and designation may be revoked if a local government fails to enforce the provisions of the corridor protection program. At a minimum, each corridor protection program must include:

- Regulation of land use and density of development;
- Detailed land and site planning;

- Control of outdoor advertising devices;
- Control of earthmoving and landscaping; and
- Regulation of the design and appearance of structures and equipment.

The *Master Plan of State Highways Eligible for Official Scenic Highway Designation* requires that proposed realignments and route improvements be evaluated for their impact on the scenic qualities of the corridor.

The Bay Area includes several designated or eligible scenic highways included on the State Master Plan. Officially designated State Scenic Highways are illustrated in Figure 2.9-1 and include:

- Highway 1, from Half Moon Bay south to Santa Cruz County Line;
- Highway 9, from Los Gatos north to Santa Cruz County Line;
- Highway 12, through the Valley of the Moon;
- Highway 24, from the Caldecott Tunnel east to I-680;
- Highway 35, from Highway 92 south to Santa Clara County Line;
- Highway 116, from Highway 1 south to City of Sebastopol City Limit;
- I-280, from San Bruno (I-380) south to Santa Clara County Line;
- I-580, from Highway 24 south to San Leandro City Limit; and
- I-680, from Highway 24 south to Santa Clara County Line.

Highways mapped as eligible for scenic designation include**:**

- SR 1, from Half Moon Bay north to SR 35;
- SR 1, from SR 35 to Highway 101 near Golden Gate Bridge;
- SR 1, from Marin County Line north to Sonoma County Line;
- SR 4, from SR 160 south to Sellers Avenue;
- SR 9, from SR 85 south to SR 17;
- SR 12, from Highway 101 to SR 121;
- SR 17, from Monte Sereno to Santa Clara County Line;
- SR 29, from SR 37 north to Napa County Line;
- SR 35, from I-280 to SR 1;
- SR 35, from SR 9 to Santa Clara County Line;
- SR 37, from Highway 101 to SR 29;

- SR 37, from SR 1 to Highway 1011;
- SR 84, from SR 238 to I-680;
- SR 116, from SR 12 to Highway 101;
- SR 152, from Santa Clara County Line to SR 156;
- I-80, from I-280 to SR 612;
- I-280, from SR 17 to the Santa Clara County line; and
- I-680, from SR 238 to Alameda County Line.

Counties and municipalities also have scenic route components within their individual general plans. Policies usually encourage the designation of these roadways as scenic corridors, either by local action or through the State program. Counties and municipalities may also establish regulatory programs or recommend corridor studies to determine the appropriate regulatory program to preserve scenic quality.

Scenic Resources

In addition to establishing provisions for scenic roads, city and county general plans may include policies for protection of scenic resources, such as hillsides, natural areas, and historic districts. Such policies may restrict new development in areas that maintain scenic vistas.

IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

This EIR uses the following criteria to assess whether the proposed Transportation 2030 Plan will have a significant adverse affect on visual resources in the Bay Area:

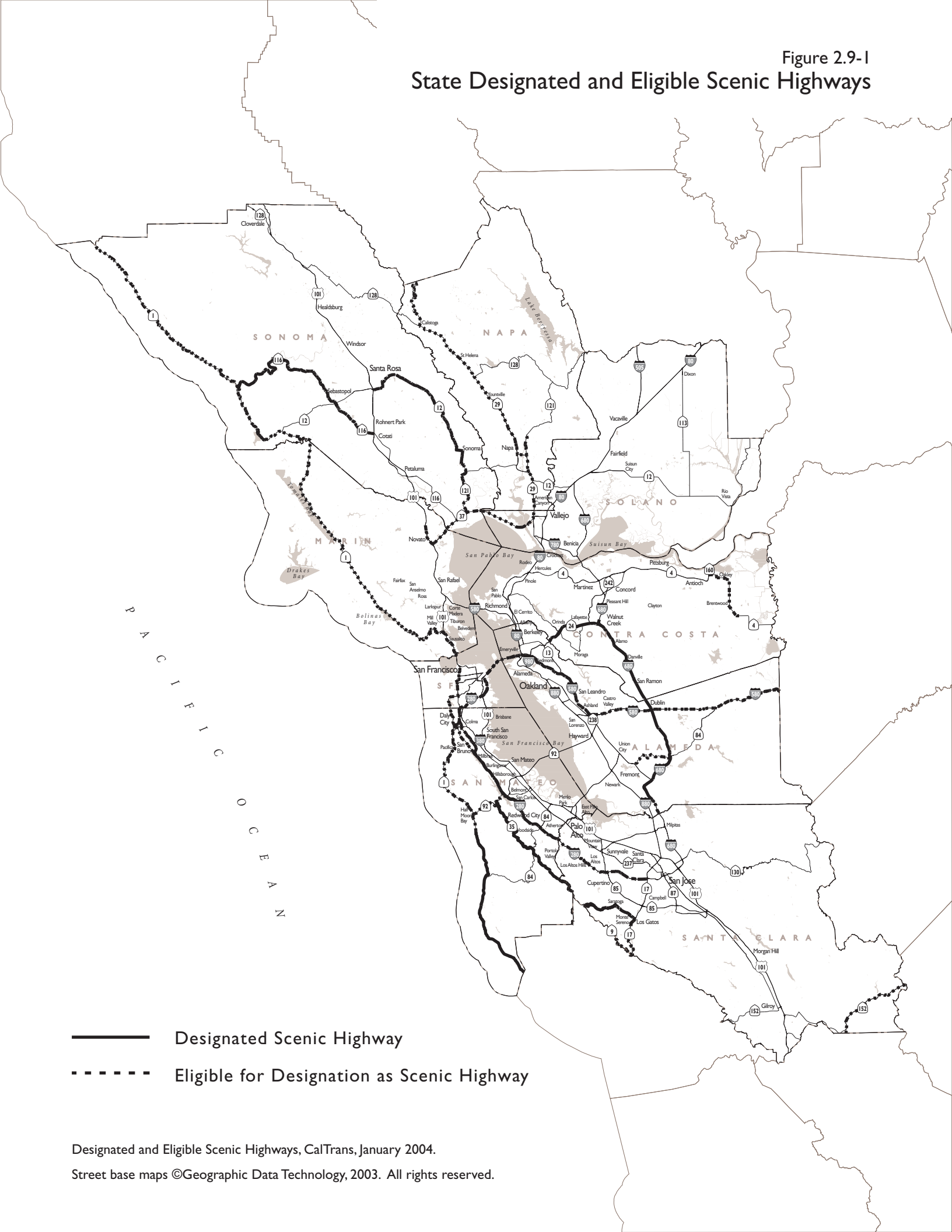
- **Criterion 1: Blocks panoramic views of significant features.** Implementation of the proposed Transportation 2030 Plan would have a potentially significant impact where transportation projects block panoramic views or views of significant landscape features or landforms (mountains, oceans, rivers, or significant man-made structures) as seen from the transportation facility or from public viewing areas.
- **Criterion 2: Alters the appearance of area near scenic highways.** Implementation of the proposed Transportation 2030 Plan would have a potentially significant impact where transportation projects alter the appearance of or from state- or county-designated or eligible scenic highways. Such projects would be judged against a higher standard for visual impacts.
- **Criterion 3: Creates significant contrasts.** Implementation of the proposed Transportation 2030 Plan would have a potentially significant impact where transportation projects create significant contrasts with the scale, form, line, color and/or overall visual character of the existing landscape setting.

[1] This segment of SR37 is not yet constructed.

[2] SR61 in this location is not yet constructed.

Figure 2.9-1

State Designated and Eligible Scenic Highways



Designated and Eligible Scenic Highways, CalTrans, January 2004.

- **Criterion 4: Adds an incongruous visual element.** Implementation of the proposed Transportation 2030 Plan would have a potentially significant impact where transportation projects add a visual element of urban character to an existing rural or open space area or add a modern element to a historic area.

Generally, the greater the change from existing conditions, the more significant the impact. For example, the construction of a new interchange usually has a greater impact than the modification of an existing one. Likewise, the construction of a new roadway generally has a greater visual impact than the widening of an existing one. Road widening, however, can have significant local impacts where they would require the removal of trees and other important landscape buffers or where they require the construction of sound walls or other contrasting visual elements.

METHOD OF ANALYSIS

The visual impacts of the construction of the transportation projects in the proposed Transportation 2030 Plan will be of two general types: changes in views for drivers; and changes in views for land uses along the roadways, transit corridors, and public viewing areas. Visual impacts were assessed by comparing the proposed Transportation 2030 Plan network to existing conditions. This methodology first involved elimination of projects that would not involve construction or would not significantly change the physical configuration of existing transportation facilities, since such projects are unlikely to have effects on views. Examples of projects that involve construction but would not substantially modify existing facilities include seismic upgrades, safety improvements, signalization projects, freeway carpool lanes that do not require roadway widening, and roadway rehabilitation. Next, the remaining projects were reviewed to determine if they are located on eligible or designated scenic highway segments or if they could significantly change the character of other important visual resources. Physical alteration may result in visual contrast, loss of vegetation, variation in design or streetscape, etc.

The types of impacts associated with individual projects are identified in this chapter; however, project-specific impacts cannot be assessed at this time without detailed project plans, elevations, landscaping plans, etc.

SUMMARY OF IMPACTS

Many of the capacity enhancing transportation improvements in the proposed Transportation 2030 Plan would have an effect on the visual character of the surrounding area or on views from a facility itself. Projects that could significantly alter views from and views of transportation facilities in the Bay Area include freeway and highway widenings, new freeway interchanges, and new rail lines (either light or heavy rail). Significant impacts would occur where the projects would block existing views or alter the appearance of a facility or the area that surrounds a facility.

Direct Impacts

Implementation of the transportation improvements in the proposed Transportation 2030 Plan could result in both short term and long term visual impacts.

Short Term Impacts

The construction of proposed projects could result in short-term visual impacts from the blockage of views by construction equipment and scaffolding, the removal of landscaping, and other construction activities that impair local views.

Long Term Impacts

Projects in the proposed Transportation 2030 Plan that would have a long term visual impact include freeway or highway widenings on or adjacent to designated or eligible scenic highway segments, some interchange overcrossing projects, and rail transit extensions and stations. While there are no restrictions on scenic highway projects, local agencies and Caltrans must work together to coordinate projects and ensure the protection of the scenic value to the greatest extent possible.[3] In some cases, local governments have their own land use and site planning regulations in place to protect scenic values along a designated corridor. Both the impact of a facility on the landscape as well as the visual appearance of a facility itself are considered.[4] On scenic highways, a pleasing appearance is as important a consideration as is safety, utility, and economy.

Some projects may require the installation of soundwalls to mitigate noise impacts on adjacent residential development or other sensitive land uses. Soundwalls may have visual impacts for roadway users and adjacent communities.

Indirect/Cumulative Impacts

Implementation of the proposed Transportation 2030 Plan could result in indirect visual impacts by serving forecast urban development that could, when it occurs, significantly change the visual character of some areas adjacent to the region's existing urban limits, especially where new development would occur on visually prominent hillsides or in existing, visually open, rural lands. To the extent that the transportation improvements in the proposed Transportation 2030 Plan, in aggregate, would serve new forecast urban development, they would add to cumulative regional impacts. In addition, other transportation improvements in the Transportation 2030 Plan not identified as having a direct visual impact in the regional context may result in individually minor visual impacts locally. Collectively, these individually minor visual impacts may become significant over time.

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[3] State law requires the undergrounding of all visible electric distribution and communication utilities within 1,000 feet of a Scenic Highway.

[4] Caltrans. *Guidelines for Official Designation of Scenic Highways.* November 1990, p. 14.

SIGNIFICANT IMPACTS AND MITIGATION MEASURES

IMPACTS & MITIGATION

Impact

2.9-1 Construction of new and expanded transportation projects could affect visual resources during the period of construction. ***(Significant, mitigable)***

The construction of projects in the proposed Transportation 2030 Plan could result in short-term visual impacts from the blockage of views by construction equipment and scaffolding, the removal of landscaping, temporary route changes, temporary signage, exposed excavation and slope faces, and construction staging areas. Many of the projects in the proposed Transportation 2030 Plan will not result in significant construction impacts, as they involve efforts that revolve around transit route improvements, road maintenance and pedestrian and bicycle improvements. However, numerous major capital projects have the potential to result in substantial visual impacts during construction.

Mitigation

2.9(a) Typical mitigation measures used to minimize short term visual impacts include reducing the visibility of construction staging areas where possible and fencing and screening these areas with low contrast materials consistent with the surrounding environment. Graded slopes and exposed earth surfaces should be revegetated at the earliest opportunity.

Impact

2.9-2 Construction of certain improvements in the proposed Transportation 2030 Plan could affect visual resources by adding or expanding transportation facilities in rural or open space areas, blocking views from adjoining areas, blocking or intruding into important vistas along roadways, and changing the scale, character, and quality of designated or eligible Scenic Highways. (* *Significant, unavoidable)***

Table 2.9-1 identifies proposed projects in the Transportation 2030 Plan that could result in potentially significant visual impacts along or adjacent to a state-designated scenic highway, or a highway eligible for such designation. Overall, the greatest impacts would occur in the Peninsula corridor where 10 projects would have potentially significant effects on the visual character of land adjacent to designated scenic highways or highways eligible for designation.

In addition to projects along scenic highways, there are additional highway widenings and new construction that would have the potential to affect rural or scenic vistas or change the character of existing views. For example, a highway widening could result in the removal of mature trees that serve to block views of the highway from adjacent land uses along the right-of-way. Without knowing the details of proposed projects, it is not possible to further identify the potential locations of possible visual impacts.

Many other projects would have no impact on visual resources. These projects include non-construction, minor rehabilitation, and some local arterial projects.

Table 2.9-1: Transportation 2030 Projects with Potentially Significant Visual Impacts in Scenic Corridors

Project ID	*Corridor*	*Description and Investment Type**	*Potential Impact*
98222	Delta	Rte 4 Bypass, Segment 1: Rte 160 freeway-to-freeway connectors to and from the north (V)	Increased visual contrast with adjoining lands and open space.
21206	Diablo	Caldecott Tunnel fourth bore (N)	Changed open space character of the hillsides and increased visual contrast.
22602	Diablo	Construct I-680 aux lns in both directions from Sycamore Valley Rd to Crow Canyon Rd (N)	Increased visual contrast with adjoining lands and open space.
98196	Diablo	Rte 24 EB aux lanes from Gateway Blvd to Brookwood Rd/Moraga Way (N)	Increased visual contrast with adjoining lands and open space.
22353	Diablo	I-680 SB HOV gap closure between North Main St and Livorna (C)	Increased visual contrast with adjoining lands and open space.
22038	Eastshore-North	San Francisco-Oakland Bay Bridge toll plaza HOV bypass lanes (N)	Widened bridge approach at the toll plaza could block views of the Bay.
22991	Fremont-South Bay	Widen I-680 for SB HOV/HOT lane from Rte 237 to Rte 84 (includes ramp metering and auxiliary lanes) (C)	Widening would change the visual character and increase contrast with adjoining urban lands and open space.
22042	Fremont-South Bay	Widen I-680 for NB HOV lane from Rte 237 to Stoneridge Dr (includes ramp metering and auxiliary lanes) (N)	Widening would change the visual character and increase contrast with adjoining urban lands and open space.
22668	Fremont-South Bay	Add NB and SB I-680 HOV lanes between Rte 84 in Alameda Co to Alcosta Blvd in Contra Costa Co (V)	Freeway widening would change the visual character and increase contrast with adjoining open space.
22779	Fremont-South Bay	Rte 262/Warren Ave/I-880 I/C improvements (Phase 2) (N)	New visual element could block views from adjoining areas.
21317	Golden Gate	Widen Route 1 from US 101 to Flamingo Rd (V)	Increased visual contrast with adjoining lands and open space.
22513	Golden Gate	Sonoma Marin Area Rail Transit District (SMART) commuter rail construction (V)	New rail and stations in scenic areas.
22193	Golden Gate	Construct Forestville bypass on Rte 116 (V)	Changed visual character of a rural area.
22655	Golden Gate	Widen US 101 for HOV lanes from Rohnert Park Expwy to Santa Rosa Ave (C)	Increased visual contrast with adjoining lands and open space.
22746	Napa Valley	Widen Rte 29/First St overcrossing to 4 lanes (V)	New visual element in the corridor could block views from adjoining areas.
94073	North Bay East-West	Construct new SB Rte 221 to SB Rte 29 flyover (including aux lane to Rte 12/Rte 29) (N)	New visual element in the corridor could block views from adjoining areas.
94075	North Bay East-	Rte 12/Rte 29/Airport I/C construction (N)	New visual element in the corridor.

Table 2.9-1: Transportation 2030 Projects with Potentially Significant Visual Impacts in Scenic Corridors

Project ID	*Corridor*	*Description and Investment Type**	*Potential Impact*
	West		
22626	North Bay East-West	Rte 29/Rte 37 I/C improvements (includes new 4-lane fwy /b/ Enterprise St and Diablo St) (C)	New visual element in the corridor.
22231	Peninsula	Widen N side of John Daly Blvd/I-280 overcrossing for additional WB traffic ln and dedicated right-turn ln for SB I-280 off-ramp (V)	New visual element in the corridor could block views from adjoining areas.
22239	Peninsula	Study of Manor Dr/Rte 1 overcrossing widening and improvement project (N)	New visual element in the corridor could block views from adjoining areas.
22271	Peninsula	Widen Skyline Blvd (Rte 35) to 4-lane roadway from I-280 to Sneath Ln(V)	Widening could increase visual contrast with adjoining rural lands and open space. Some tree loss also may occur.
98203	Peninsula	Study of Rte 1 in Half Moon Bay area operational and safety improvements (V)	Widening a highway could increase visual contrast with rural lands.
22724	Peninsula	Improve Rte 92 from San Mateo Bridge to I-280 (Phase 2) (V)	Increased visual contrast with adjacent scenic lands.
22729	Peninsula	I-280 aux lanes from I-380 to Hickey Blvd (V)	Increased visual contrast with adjoining lands and open space.
94644	Peninsula	Rte 92 WB slow vehicle lane between Rt e 35 and I-280 (V)	Widening could increase visual contrast with adjoining rural lands and open space.
21613	Peninsula	Rte 92 improvements from San Mateo Bridge to I-280, includes uphill passing lane from US 101 to I-280 (Phase1) (N)	Widening could increase visual contrast with adjoining rural lands and open space.
21619	Peninsula	Caltrain express tracks (Phase 2) (N)	Increased visual contrast with adjoining lands and open space.
22010	Silicon Valley	Construct I-280 NB second exit lane to Foothill Expwy (N)	Increased visual contrast with adjoining lands and open space.
22091	Silicon Valley	Upgrade Rte 152 to a limited access 4-lane fwy (V)	Widening could increase visual contrast with adjoining rural lands and open space.
22186	Silicon Valley	Widen San Tomas Expwy between Rte 82 and Williams Rd to 8 lanes (N)	Increased visual contrast with adjoining lands and open space.
22843	Silicon Valley	Widen Lawrence Expwy /b/ Moorpark/Bollinger and S of Calvert to 8 lns (N)	Widening could increase visual contrast with adjoining development.
98140	Sunol Gateway	Widen I-680 NB for an HOV lane from Rte 84 to Calavaras Blvd (N)	Widening could increase visual contrast with adjoining development.
98139	Sunol Gateway	ACE station/track improvements and additional parking in Alameda Co (N)	Increased hardscape and changed visual character of the corridor.
98140	Sunol	I-680 Sunol Grade SB HOV lns, ramp metering	Increased visual contrast with adjoining

Table 2.9-1: Transportation 2030 Projects with Potentially Significant Visual Impacts in Scenic Corridors

Project ID	*Corridor*	*Description and Investment Type**	*Potential Impact*
	Gateway	and aux lane from Rte 84 to Rte 237 (C)	lands and open space.
22013	Tri-Valley	I-580 corridor improvements (includes widen I-580 for HOV and aux lanes from Tassajara Rd to Greenville Rd) (N)	Increased visual contrast with adjoining lands and open space.
22785	Tri-Valley	Construct I-580 EB aux lane from First St to Vasco Rd (C)	Widening could increase visual contrast with adjoining development.
22664	Tri-Valley	I-580 HOT lane s from Greenville Rd W to I-680 (V)	Increased visual contrast with adjoining lands and open space.
22666	Tri-Valley	Rte 84 HOT lanes in Tri-Valley (V)	Increased visual contrast with adjoining lands and open space.

**C= Committed Project, N= New Commitment Project, V= Vision Element Project*

Source: Dyett & Bhatia, 2004

Mitigation

2.9(b) Project sponsors shall commit to mitigation measures at the time of certification of their project environmental document. These commitments obligate project sponsors to implement measures that would minimize or eliminate any significant visual impacts. Typical mitigation measures that could be considered by project sponsors include:

- Design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and development. Site or design projects to minimize their intrusion into important view sheds.
- Use natural landscaping to minimize contrasts between the project and surrounding areas. Wherever possible, develop interchanges and transit lines at the grade of the surrounding land to limit view blockage. Contour the edges of major cut and fill slopes to provide a more natural looking finished profile.
- Design landscaping along highway corridors to add significant natural elements and visual interest to soften the hard edged, linear travel experience that would otherwise occur.
- Complete design studies for projects in designated or eligible Scenic Highway corridors. Consider the "complete" highway system and develop mitigation measures to minimize impacts on the quality of the views or visual experience that originally qualified the highway for Scenic designation.

These mitigation measures would be expected to reduce potentially significant impacts on visual resources to a less-than-significant level if incorporated by project sponsors. It is not expected that these mitigation measures would eliminate all visual impacts, and the implementation of some transportation improvements in the proposed Transportation 2030 Plan may result in visual changes that could be considered adverse and significant by some viewers.

Impact

2.9-3 The construction of soundwalls along freeways and arterials, where they are used to reduce noise levels in surrounding residential areas, could significantly alter views from the road reducing visual interest and sense of place while also limiting views and sunlight from adjoining areas. ***(Significant, unavoidable)***

The proposed soundwall programs in Alameda and Santa Clara counties, along with other soundwalls that may be built to mitigate noise impacts of freeways and highway expansion projects, would affect the visual character of the streetscapes, highway and freeway corridors where these programs are implemented. Architectural relief, landscaping and visual screening, which are now customary requirements, for new soundwall programs would soften the contrasts, but views into neighborhoods would be blocked by these programs. Because the full scope of these programs has not yet been established, the physical extent of view blockage is unknown at this time. Nonetheless, this would be a significant visual impact.

Mitigation

2.9(c) Transportation project sponsors should consider the following mitigation measures to minimize significant visual impacts:

- Replace and renew landscaping to the greatest extent possible along corridors with road widenings, interchange projects and related improvements. Plan landscaping in new corridors to respect existing natural and man-made features and to complement the dominant landscaping of surrounding areas.
- Where possible, develop new or expanded roadways below the grade of surrounding areas to minimize the need for tall soundwalls.
- Construct soundwalls of materials whose color and texture complements the surrounding landscape and development.
- Where there is room, landscape the soundwalls with plants that screen the soundwall, preferably with either native vegetation or landscaping that complements the dominant landscaping of surrounding areas.

These mitigation measures are not expected to reduce this potentially significant impact on visual resources to a less-than-significant level in all cases. As such, this impact would likely remain significant, depending upon the extent, design, and specific location of the soundwalls.

Cumulative Impact

2.9-4 Forecast urban development that would be served by transportation improvements in the proposed Transportation 2030 Plan could significantly change the visual character of many areas in the region, especially where development would occur on visually prominent hillsides or in existing rural or open space lands. (*Significant, unavoidable)*

ABAG's *Projections 2003* anticipates that new development would convert approximately 65,000 acres to urban or suburban residential use. Although some proportion of this land would be converted from commercial, industrial or military use, a substantial portion would represent "greenfields" development and, as such, represent a change in the open space character of the region. Further, much of the developable flat land in the Bay Area has already been converted to urban use, and the remaining development opportunities include hillside sites as well as rural land. However, urban limit lines have been established by many Bay Area communities to protect remaining open space, which will limit unanticipated consequences of development and resulting visual impacts. Therefore, urban limit lines may partially limit this impact. Table 2.9-2 shows that the proportion of total land in the region that will be developed for urban uses is only expected to increase from 18 to 19 percent, which is largely due to the assumptions about a compact land use pattern made for *Projections 2003.*

Table 2.9-2: Percent Developed Land By County, 2000-2030

County	*2000*	*2005*	*2010*	*2015*	*2020*	*2025*	*2030*
San Francisco	51%	51%	51%	51%	52%	52%	53%
San Mateo	29%	30%	30%	31%	31%	31%	31%
Santa Clara	20%	20%	20%	20%	21%	21%	21%
Alameda	28%	29%	30%	30%	30%	30%	31%
Contra Costa	23%	24%	24%	25%	25%	26%	26%
Solano	12%	12%	13%	13%	13%	13%	13%
Napa	5%	5%	5%	5%	5%	5%	5%
Sonoma	17%	18%	18%	18%	18%	18%	18%
Marin	12%	12%	12%	12%	12%	12%	12%
Region	18%	18%	19%	19%	19%	19%	19%

Source: ABAG, Projections 2003

Mitigation

Local land use agencies are responsible for the approval of forecast urban development. These agencies should apply development standards and guidelines to maintain compatibility with surrounding natural areas, including site coverage, building height and massing, building materials and color, landscaping, site grading, etc., in visually sensitive sites areas.

This mitigation measure is not expected to reduce this potentially significant cumulative impact on visual resources to a less-than-significant level, since the cumulative effect of forecast development would be to alter the visual character of many parts of the Bay Area over the next 25 years.

2.10 Cultural Resources

This chapter evaluates the potential impacts on cultural resource resulting from the implementation of the proposed Transportation 2030 Plan. In the context of this EIR, cultural resources are described as the material remains identified with either the prehistoric inhabitants of the area (any time prior to the arrival of the Spanish in the latter half of the 18th century) or with the historic inhabitants. The historic period begins with the arrival of the Spanish and continues up to 45 years ago, a definition that is recognized under both CEQA and NEPA guidelines. While there are procedural differences between the State and federal guidelines, both establish the conditions under which a particular resource is significant and requires mitigation as part of a proposed plan or project.

ENVIRONMENTAL SETTING

PHYSICAL SETTING

This section summarizes both historic and prehistoric resources and identifies the types of geographic areas that may contain cultural resources.

Prehistoric Resources

Prehistoric cultural resources are composed of Native American structures or sites of historical or archaeological interest. These may include districts, buildings, objects, landscape elements, sites, or features that reflect human occupations of the region, such as villages and burial grounds.

The moderate climate, combined with the abundant natural resources found throughout the nine-county region, has supported human habitation for several thousand years Before Present (BP). Some theories suggest that the prehistoric bay and river margins were inhabited as early as 10,000 years ago (EIP Associates, 1993). Rising sea levels, the formation of the San Francisco Bay, and the resulting filling of inland valleys have covered these early sites, which were most likely located along the then existing bayshore and waterways. Existing evidence indicates the presence of many village sites from at least 5,000 years BP in the region. The arrival of Native Americans into the Bay Area is associated with documented cultural resources from circa 5,500 BP (U.S. Dept. of Interior, 1990).

Six different groups of Native population, identified by their language, lived within the Bay Area, including Costanoan, Eastern Miwok, Patwin, Coast Miwok, Pomo and Wappo. These Native populations periodically increased between 5,000 BP and the arrival of the Spanish in the late 18th century. Native villages and campsites were inhabited on a temporary basis and are found in several ecological niches due to the seasonal nature of their subsistence base.

By the end of the first millennium A.D., population densities had grown to the point where less favorable environmental settings were being used for habitation. Groups competed for the hunting grounds, seed and acorn gathering areas and other areas necessary to a hunting and gathering culture. Remains of these early peoples indicate that main villages, seldom more than

1,000 residents, were usually established along water courses and drainages. Remains of satellite villages have been found in areas used for procurement of food or other resources. By the late 1760s about 300,000 Native Americans lived in California (ABAG, 1991).

Historic Resources

Historic cultural resources are composed of structures and sites from the Spanish, Mexican, and American periods of California's history. These may include missions, historic ranch lands, and structures and sites from the Gold Rush and the region's early industrial era (MTC, 1994).

The arrival of the Spanish and the development of the mission system in the latter half of the 18th century permanently disrupted the indigenous societies flourishing in the area. Native American settlements were abandoned and replaced with agricultural land, housing, and military support for the missions. The San Francisco Mission (Mission San Francisco de Asis or Mission Dolores) and the Presidio (Yerba Buena) were founded in 1776. Both the Mission Santa Clara and the Pueblo de San Jose de Gudalupe were founded in 1777 in Santa Clara County.

After the Mexican revolt against Spain in 1822 California lands came under Mexican rule and large tracks of land, including the former missions, were granted to individual owners. It was during the Mexican era that most of the historic ranch lands and associated living quarters and operational structures originate.

Mexico ceded control of California to the United States at the end of the Mexican-American War (1846-1884), and the discovery of gold in the late 1840s brought thousands of prospectors and settlers into California. The Bay Area became the gateway to the gold of the Sierra Nevada, with rapid growth occurring in several of the region's fledgling cities, focusing in San Francisco as a shipping and financial center. Today the structures and sites from this Gold Rush period are often considered to be of historic significance.

An era of increased agricultural production followed the Gold Rush, with much of the region's inland valley natural grasslands plowed for wheat, orchard, and vegetable cultivation. Construction of levees in the Sacramento/San Joaquin delta reclaimed wetland areas for field crops and orchards, and lumbering, begun during the gold rush to supply mining operations, continued to supply a growing population. The completion of the intercontinental railroad in San Francisco in 1888 assured the Bay Area's continued prominence as an economic and population center for the West in general and for California.

In the early 1900s the Bay Area's economic base continued to grow and diversify, with a maritime industry developing around the Bay and manufacturing, trade, and the lumber industry aiding in the growth and development of the region. Urban areas continued to grow in accordance with transportation corridors. The rail lines of the early 1900s supported new development along their routes, with residential and commercial centers at their stops. The arrival of the automobile and roadway construction allowed population and economic centers to develop in more dispersed patterns throughout the region. Cultural resources from this manufacturing era include sites and structures associated with industrial development (i.e. railroad and maritime industries) and with prominent citizens of the time.

Recorded Regional Resources

The interpretations and designations of archaeological resources in the Bay Area are documented at the Northwest Information Center at Sonoma State University. This information reflects the presence of known archaeological sites; known geological, soil, biological, hydrological, and topographical features; and the experience of archaeologists familiar with the field occurrences of such resources in the Bay Area.

As shown in Table 2.10-1, approximately 6,996 pre-historic and historic cultural sites have been recorded in the Bay Area and are listed with the Historical Resources Information System. Currently, some 1,373 cultural resources are listed on the National Register of Historic Places, of which approximately 240 are designated California Historic Landmarks. The California Inventory of Historic Resources includes a total of about 820 historic buildings, sites, or objects and 2,340 archaeological sites. The greatest concentration of listed historic resources occurs in San Francisco, with 215 sites on the National Register. Alameda County has the second highest number of listed historic resources with 159. In addition to national and State historic preservation legislation, many Bay Area counties and communities have enacted local ordinances that recognize and preserve historic sites. San Francisco, Sonoma, Napa, and San Mateo counties all have county-wide historic preservation programs and at least 30 cities have their own historic preservation ordinances.[1]

Locations of Sensitivity

Dense concentrations of the Native American archaeological sites occur along the historic margins of San Francisco and San Pablo Bays. In addition, archaeological sites have also been identified in the following environmental settings in all Bay Area counties:

- Near sources of water, such as vernal pools and springs;
- Along ridgetops and on midslope terraces; and
- At the base of hills and on alluvial flats.

Native American archaeological sites have also been identified in the inland valleys of all of Bay Area counties. Remains associated with a Native American archaeological site may include chert or obsidian flakes, projective points, mortars and pestles, and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials.

Dense concentrations of historic resources are often found in large urban areas and smaller cities that experienced growth and development during the historic period. Historic resources are also found in rural settings where homesteads, ranches, or farms were once present. Historic remains may include stone or adobe foundations or walls, structures and remains with square nails, and refuse deposits often in old wells and privies.

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[1]Including Alameda, Berkeley, Calistoga, Campbell, Dixon, Gilroy, Half Moon Bay, Healdsburg, Hillsborough, Larkspur, Livermore, Menlo Park, Mill Valley, Morgan Hill, Napa, Oakland, Palo Alto, Petaluma, Redwood City, San Anselmo, San Jose, San Mateo, Santa Clara, Santa Rosa, Sebastopol, Sonoma, South San Francisco, St. Helena, Sunnyvale, Vacaville, Vallejo, Yountville. Source: 1998 RTP EIR.

Table 2.10-1: Recorded Archaeological and Historical Sites in the Bay Area

	County								
Source of Record	*Alameda*	*Contra Costa*	*Marin*	*Napa*	*San Francisco*	*San Mateo*	*Santa Clara*	*Solano*	*Sonoma*
Recorded Prehistoric and Historic Sites[1]	678	770	656	929	127	374	815	421	2,226
Cultural Resources listed individually on the National Register of Historic Places and the California Register of Historic Places[2,3]	142 BSO 17 AS	36 BSO 170 AS	50 BSO 8 AS	79 BSO 14AS	206 BSO 9 AS	50 BSO 10 AS	142 BSO 43 AS	36 BSO 4 AS	72 BSO 285 AS
California Historic Landmarks[4]	30 BSO 1 AS	14 BSO	14 BSO	17 BSO	48 BSO	34 BSO	43 BSO	14 BSO	27 BSO
Listings on the California Inventory of Historical Resources	221 BSO 344 AS	108 BSO 352 AS	30 BSO 413 AS	31 BSO 328 AS	141 BSO 26 AS	75 BSO 152 AS	149 BSO 61 AS	30 BSO 264 AS	33 BSO 400 AS
Bridges Listed on the Caltrans Local Bridge Survey[5]	286	322	120	102	49	127	406	162	406

Abbreviations: BSO (Building, Site, or Object); AS (Archaeological Site).

[1] Northwest Information Center, 2004.

[2] State Office of Historic Preservation, 2004.

[3] Not included here are a category of 3,142 resources that have been listed as contributors to an Archaeological or Historic District and another set of 806 resources that have been determined to be eligible for listing on the National Register or the California Register of Historic Places.

[4] State Office of Historic Preservation, 1996.

[5] Caltrans Local Bridge Survey, 1989.

Source: Northwest Information Center, Sonoma State University, 2004

REGULATORY SETTING

Several state laws, most notably Section 15064.5 (f) of CEQA and Section 5020-5029 and 21083.2 of the Public Resources Code, protect archaeological and historic resources. CEQA requires assessment of the impacts of development projects upon unique archaeological resources or Native American culturally significant sites. If the project is found to cause damage to the resource, reasonable efforts may be required to preserve the resources, or leave then in an undisturbed state, or undertake additional mitigation measures if avoidance is not possible.

To protect historic resources, the State has formed the State Historical Resources Committee that conducts the State Historic Resource Inventory and maintains the California Register of Historic Resources, which identifies historical landmarks and points of interest. The Committee also provides recommendations for the National Register of Historic Resources.

When prehistoric or historic sites are identified, detailed field-level evaluation is required to determine the significance of the contents of any remains. Archival research is needed in the case of identified but unprotected archaeological sites and buildings, sites, or objects to determine the role played by the location and the contents in relation to the local history of the area, or their associations with important persons and events of local importance. Numerous recorded prehistoric and historic sites in the San Francisco Bay Area have not yet received this level of detailed analysis. A detailed evaluation must be conducted before mitigation measures can be finalized for those resources that will be damaged by actual construction.

IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

This EIR uses the following criteria to assess whether the proposed Transportation 2030 Plan will have a significant adverse effect on cultural resources in the Bay Area:

- **Criterion 1:** ***Substantially changes the significance of a historical resource.*** Implementation of the proposed Transportation 2030 Plan would have a potentially significant impact if transportation projects have the potential to cause a substantial adverse change in the significance of a historical resource, defined as physical demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of an historic would be materially impaired (Guidelines § 15064.5).
- **Criterion 2:** ***Substantially changes the significance of an archaeological resource.*** Implementation of the proposed Transportation 2030 Plan would have a potentially significant impact if transportation projects have the potential to cause a substantial adverse change in the significance of a unique archaeological resource.
- **Criterion 3:** ***Destroys a unique paleontological resource.*** Implementation of the proposed Transportation 2030 Plan would have a potentially significant impact if transportation projects have the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

- **Criterion 4:** ***Disturbs human remains.*** Implementation of the propo sed Transportation 2030 Plan would have a potentially significant impact if transportation projects within the Plan have the potential to disturb any human remains, including those interred outside of formal cemeteries.

Generally under CEQA, a resource is considered "historically significant" if it meets the requirement for listing on the California Register of Historical Resources, which involves the following:

Criteria for Evaluating the Significance of Historic Resources. An historical resource must be considered significant at the local, state, or national level under one or more of the following four criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (California Public Resources Code).

Finally, in addition to determining the significance and eligibility of any identified historical resource under CEQA and the California Register, historic properties must be evaluated under the criteria for the National Register of Historic Places should federal funding or permitting become involved in any undertaking subject to this document.

METHOD OF ANALYSIS

This methodology recognizes that important cultural resources may be encountered during ground-disturbing construction work on Transportation 2030 Plan projects that involve physical construction. As described in the land use impact analysis in Chapter 2.3, there are a total of 178 projects that involve physical construction. Any of these projects could contribute to disturbance or damage of cultural resources and, therefore, it would be speculative to attempt to further refine the list of projects that could impact cultural resources.

Projects associated with the operation and maintenance of the transportation system, such as signalization, equipment replacement, and pavement maintenance, would not directly affect cultural resources. Because this EIR is a program EIR, site-specific analysis of potential impacts on cultural resources is not appropriate. Since the specific locations of cultural resources are not mapped (and resources have yet to be identified), and since the extent of ground disturbance associated with various Transportation 2030 Plan projects is unknown at this time, it is not possible to assess the specific impacts on cultural resources based on the location of these projects. Accordingly, no project-specific reviews or field studies were undertaken for this program EIR. Instead, this analysis identifies the type and magnitude of impacts that may result from the proposed project as a whole.

Subsequent to this program EIR, CEQA mandates the review of all Transportation 2030 Plan projects for potential environmental impacts, and projects that involve ground-disturbing activities will generally require a records search and/or field review by qualified professionals to identify site-specific cultural resource impacts.

SUMMARY OF IMPACTS

While project-specific studies will be necessary to determine the actual potential for significant impacts on cultural resources resulting from the implementation of the transportation improvements in the Transportation 2030 Plan, some general impacts can be assumed based on the general type and location of the improvements.

Direct Impacts

Implementation of the transportation improvements in the proposed Transportation 2030 Plan could result in both short term and long term impacts on cultural resources due to disturbance of both known and unknown resources, artifacts, burial grounds, etc. during project construction. However, since most of the Bay Area has not been systematically surveyed for cultural resources, it is not possible to determine what the direct impacts would be in the specific project area.

Indirect/Cumulative Impacts

Implementation of the transportation improvements in the proposed Transportation 2030 Plan could result in indirect impacts on cultural resources by serving forecast urban development that could, when it occurs, have the potential to disturb, destroy, or significantly affect cultural resources.

IMPACTS AND MITIGATION

Impact

2.10-1 Individual transportation improvements in the proposed Transportation 2030 Plan that involve ground disturbing activities have the potential to disturb, destroy, or significantly affect cultural resources. ***(Significant, mitigable)***

The construction of transportation improvements in the proposed Transportation 2030 Plan could result in impacts on cultural resources if construction activities include the disturbance of the existing terrain. Likewise, the establishment of staging areas, temporary roads, and any other temporary facilities necessary for construction activities also has the potential to impact these cultural resources.

Projects located in the vicinity of historic bayshore margins, existing or historic water courses, along ridgetops, at the base of hilltops, and on alluvial flats are most likely to encounter cultural resources. Projects involving improvements within existing urban areas, within existing transportation corridors, or to existing infrastructure or operations are less likely to impact cultural resources since these projects are located in already-disturbed areas that may have been

subject to previous cultural resource surveys. However, since most transportation corridors follow valleys and drainage areas, and since archaeological resources are scattered throughout the Bay Area, many of the construction-related projects in the proposed Transportation 2030 Plan have a potential for significant impacts.

Projects located in areas with known historical sites, or located in communities with established historic preservation programs, or involving activities that would disturb the existing terrain are likely to result in significant impacts on cultural resources. A higher incidence of impacts to historical sites is expected to occur in urban areas settled or developed more than 40 years ago. However, projects traversing rural lands could also have significant impacts on sites that are singular examples of an historical setting. Both urban and rural projects could impact archaeological and paleontological resources.

The degree and extent of impacts will depend upon project-specific analysis to determine whether the value—i.e., the eligibility for local, State, or national recognition—of any cultural resource identified within a proposed alignment or project area. However, given the magnitude and location of several transportation improvements in the proposed Transportation 2030 Plan, and given the number of projects involving construction activities, it is possible that significant impacts on cultural resources could occur.

Mitigation Measures

2.10(a) Project sponsors shall commit to mitigation measures at the time of certification of their project environmental document. These commitments obligate project sponsors to implement measures that would minimize or eliminate any significant impacts on cultural resources. Typical mitigation measures that can be considered by project sponsors include:

- Site evaluation to determine an area of potential effect, including activities related to construction and the extent of post-construction impacts, for any site that requires grading or subsurface disturbance.
- Review through the Northwest Information Center at Sonoma State University to determine the potential for, or existence of, cultural resources.
- Evaluation to determine the significance (as defined by CEQA and National Historic Preservation Act guidelines) of cultural resources identified within the area of potential effect.
- Assessment by a qualified professional of sites or corridors with no identified cultural resources, but a moderate to high potential for archaeological resources.
- Assessment by a qualified professional of structures greater than 40 years in age within the area of potential effect to determine their eligibility for recognition under State, federal, or local historic preservation criteria.
- For development adjacent to sites with an identified historic or archaeological resource, minimize degradation to the resource by studying the potential effects and implementing appropriate measures to protect the integrity of the resource or site.

- Project-specific environmental documents shall require that if evidence of a cultural resource is found during construction the following actions shall be implemented:
  - Cessation of construction activities.
  - Evaluation by a professional archaeologist or historian to evaluate the value of the resources found and to advise on a plan to preserve resources determined to be of significance.

With the implementation of the above measures and adherence to state and federal regulations that protect cultural resources, potentially significant impacts on cultural resources would be reduced to levels that are not significant.

Cumulative Impact

2.10-2 Forecast urban development that would be served by transportation improvements in the proposed Transportation 2030 Plan could have the potential to disturb, destroy, or significantly affect cultural resources. ***(Significant, mitigable)***

To the extent that the transportation improvements in the proposed Transportation 2030 Plan, in aggregate, would serve new forecast urban development, it would add to cumulative regional impacts. In addition, other transportation improvements in the proposed Transportation 2030 Plan not identified as having a direct impact on cultural resources in the regional context may result in individually minor impacts locally. Collectively, these individually minor impacts on cultural resources may become significant over time.

Mitigation Measures

Implementation of Mitigation Measure 2.10(a) (see above) would reduce potential impacts to levels that are not significant.

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2.11 Growth-inducing Impacts

This section discusses the ways in which the proposed Transportation 2030 Plan could generate population and employment growth beyond levels currently anticipated in regional and local plans. It describes the projected population and employment growth for the Bay Area between now[1] and 2030 and the location of the projected growth within the region. It also discusses various population characteristics (e.g., age, ethnicity, and income), and identifies trends in the balance of jobs and housing throughout the region.

It should be noted that two data sets from ABAG *Projections 2003* are used in this section: *Projections 2003* Summary Tables (e.g., City, County, etc.), and MTC's *Superdistrict and County Summaries of ABAG's Projections 2003 2000-2030 Data Summary* (September 2003). The latter of these two data sets is used for the majority of the demographics analysis.

POPULATION AND EMPLOYMENT GROWTH TRENDS AND PROJECTIONS

As background for the growth-inducing analysis, past growth trends and future growth projections are presented in this section. The Bay Area's population increased by 90 percent from 1960 to 2000, while jobs increased by 200 percent. Looking ahead to the next 25 years, the Association of Bay Area Governments (ABAG) projects that the Bay Area's population will grow another 29 percent (nearly 2 million more residents) and employment will increase by another 39 percent (1.5 million additional jobs).

During the past 40 years, the locations of people and jobs have become much more dispersed as new urban centers have formed and cities have gained population on the edge of the region. Population growth in the Bay Area is illustrated in Table 2.11-1. Santa Clara County is now the most populous county in the Bay Area and is home to about 25 percent of the region's residents. The county's largest city, San Jose, is also the largest city in the Bay Area with a population of 895,000 or about 13 percent of the region's residents (ABAG, 2003). Currently, there are 12 cities in the Bay Area of more than 100,000 residents.

Table 2.11-2 shows that similar to the population trends, jobs are also redistributing between areas. Three counties, Santa Clara, Alameda, and San Francisco account for two thirds of all the Bay Area jobs. ABAG projects that Solano and Sonoma Counties will have the greatest rate of job growth in the coming 25 years, at 66 percent and 56 percent respectively (ABAG, 2003). The cities gaining the largest number of people and jobs over the next 25 years are shown in Tables 2.11-3 and 2.11-4.

[1] Where available, current data is used. However, most demographic data is limited to U.S. Census data (year 2000) or DOF data (year 2003).

Table 2.11-1: Population Growth in the Bay Area (1980-2030)

County	*2003*	*1980*	*2000*	*2030*	*Growth: 1980-2000*	*Growth: 2000-2030*	*% of Total 2000*	*% of Total 2030*
Alameda	1,495,400	1,105,400	1,443,700	1,888,300	338,400	444,500	21	22
Contra Costa	1,003,800	656,400	948,800	1,257,300	292,400	308,500	14	14
Marin	250,300	222,600	247,300	283,100	24,700	35,800	4	3
Napa	130,900	99,200	124,300	153,500	25,100	29,200	2	2
San Francisco	786,900	679,000	776,700	935,100	97,800	158,300	11	11
San Mateo	712,800	587,300	707,200	846,000	119,800	138,800	10	10
Santa Clara	1,723,900	1,295,100	1,682,600	2,274,200	387,500	591,600	25	26
Solano	416,500	235,200	394,500	577,300	159,300	182,700	6	7
Sonoma	473,300	299,700	458,600	565,700	158,900	107,100	7	6
Region	***6,993,800***	***5,179,800***	***6,783,800***	***8,780,300***	***1,604,000***	***1,996,600***	***100***	***100***

Source: Department of Finance (DOF), 2003b; U.S. Census, 1980; MTC Superdistrict and County Summaries of ABAG Projections 2003 2000-2030 Data Summary, 2003

Table 2.11-2: Job Growth in the Bay Area (1980-2030)

County	*2003*	*1980*	*2000*	*2030*	*Growth: 1980-2000*	*Growth: 2000-2030*	*% of Total 2000*	*% of Total 2030*
Alameda	698,900	513,800	751,700	1,087,400	237,900	335,700	20	21
Contra Costa	488,800	201,200	361,100	536,400	159,900	175,300	10	10
Marin	124,700	77,900	123,000	164,000	45,100	41,000	3	3
Napa	67,400	35,900	66,800	89,000	30,900	22,200	2	2
San Francisco	375,400	552,200	634,400	815,700	82,200	181,200	17	16
San Mateo	351,600	259,800	395,900	526,600	136,100	130,700	11	10
Santa Clara	821,100	702,900	1,092,300	1,481,700	389,400	389,300	29	28
Solano	199,800	90,800	123,200	204,700	32,400	81,500	3	4
Sonoma	244,800	103,400	205,200	321,000	101,800	115,800	5	6
Region	***3,372,500***	***2,537,900***	***3,753,700***	***5,226,300***	***1,215,800***	***1,472,600***	***100***	***100***

Source: California Employment Development Department, 2004; U.S. Census, 1980; MTC Superdistrict and County Summaries of ABAG Projections 2003 2000-2030 Data Summary, 2003

Table 2.11-3: Top Ten Bay Area Cities by Population Growth (2000-2030)

City	*2000*	*2000-2030 Change*
San Jose	895,000	385,000
San Francisco	777,000	158,000
Oakland	399,000	122,000
Fremont	203,000	54,000
San Ramon	45,000	46,000
Fairfield	96,000	46,000
Dublin	30,000	45,000
Santa Rosa	148,000	43,000
Pittsburg	57,000	42,000
Vacaville	89,000	42,000

Source: Association of Bay Area Governments, 2003

Table 2.11-4: Top Ten Bay Area Cities by Employment Growth (2000-2030)

City	*2000*	*2000-2030 Change*
San Jose	423,000	189,000
San Francisco	634,000	181,000
Oakland	194,000	70,000
Santa Rosa	100,000	55,000
Fremont	108,000	55,000
Livermore	40,000	45,000
Santa Clara	136,000	36,000
Sunnyvale	113,000	32,000
Concord	60,000	26,000
Hayward	87,000	25,000

Source: Association of Bay Area Governments, 2003

Age

The median age of the population rose from 33 to 36 over the past decade (Census, 1990 and ABAG, 2003). However, as illustrated in Table 2.11-5, which compares the 1990 age distribution to the 2000 age distribution estimates, the region has remained stable in the percentage of the population in the three age categories. In a majority of the region's counties, the percentage of the population over the age of 65 has increased slightly or remained the same. As the Baby Boomers age, the proportion of the population group over 65 is projected to increase 169 percent to 2,039,900 people (23 percent of the total population) by 2030. About 49 percent of the population over 65 will be over age 75, and much less likely to drive (ABAG, 2003). This aging trend is likely to pose a greater demand for specialized transportation services.

A corollary trend is the small increase in the percentage of population in the working age brackets–ages 20 to 64. As the baby boomers continue to age, this percentage will most likely decrease and it is unlikely that the next generation will replenish the workforce. Rather, the most likely source of workers to fill new jobs will come from other adjacent counties.

Table 2.11-5: Age Distribution in the Bay Area

	County (Percent in 1990/2000)									
Age Category	*Alameda*	*Contra Costa*	*Marin*	*Napa*	*San Francisco*	*San Mateo*	*Santa Clara*	*Solano*	*Sonoma*	*Region*
Under 19	26/27	28/29	21/22	26/27	18/16	24/25	27/27	32/31	27/27	26/26
Age 20-64	63/63	61/60	67/65	58/58	67/70	63/62	64/63	60/59	59/60	63/63
Over 65	11/10	11/11	12/14	17/15	15/14	12/12	9/10	8/9	13/13	11/11

Due to rounding not all columns may total 100 percent.

Source: U.S. Census, 1990; Association of Bay Area Governments, 2003

Ethnicity

Since 1990, the Bay Area has grown more diverse, notably through the increase in Asian and Hispanic residents. Census 2000 figures show that non-Hispanic whites have decreased to about 50 percent of the population in 2000. By 2030, non-Hispanic whites will constitute only 35 percent of the population. By 2030, Hispanics will constitute around 28 percent, Asians or Pacific Islanders around 29 percent, African Americans about 8 percent, and American Indians less than one percent of the population (DOF, 1998). Of these groups, the proportion of Asians or Pacific Islanders living in the Bay Area is much greater than the proportion of Asians or Pacific Islanders in California.

Income/Car Ownership

Mean household income is expected to increase by 28 percent (in 2000 constant dollars) between 2000 and 2030 (ABAG, 2003). Although increases in wealth are not likely to be evenly distributed among age groups and ethnic groups, rising income indicates a higher potential for car ownership. As a result, while approximately 10 percent of Bay Area households currently do not own a vehicle, this percentage is projected to decrease to 9.8 percent by 2020. The number of households without vehicles will climb, in absolute terms, from 247,200 to 311,400 – a 26 percent increase.

Jobs and Housing

Over the last ten years, the supply of affordable housing in the Bay Area has not kept pace with job growth. Thus, new workers filling jobs must either pay very high prices to own or rent housing near their places of employment or move further away from employment centers and face correspondingly longer commutes. The greatest projected need for additional housing according to ABAG is in Santa Clara and Alameda counties, where many of the jobs are found (ABAG, 2003).

Table 2.11-6 compares the number of employed residents with the number of jobs projected for each county and provides an indication of which counties are exporters of workers and which

counties import workers by virtue of having more jobs than employed residents. For the Bay Area as a whole, there will be more jobs in 2030 than employed residents, resulting in about 243,000 commuters coming from outside the Bay Area to fill jobs within the nine county region.

Table 2.11-6: Population and Employment by Bay Area County – Net Importers/Exporters of Workers (Year 2000 and 2030)

		Year 2000		
County	*Employed Residents*	*Jobs*	*Difference*	*Imports/Exports workers*
Alameda	697,900	751,700	53,800	IMPORTS
Contra Costa	483,900	361,100	-122,800	EXPORTS
Marin	141,000	123,000	-18,000	EXPORTS
Napa	67,100	66,800	-300	EQUAL[1]
San Francisco	444,900	634,400	189,600	IMPORTS
San Mateo	403,100	395,900	-7,200	EQUAL[1]
Santa Clara	959,100	1,092,300	133,300	IMPORTS
Solano	179,500	123,200	-56,300	EXPORTS
Sonoma	229,300	205,200	-24,100	EXPORTS
Region	***3,605,700***	***3,753,700***	***148,000***	***IMPORTS***
		Year 2030		
County	*Employed Residents*	*Jobs*	*Difference*	*Imports/Exports Workers*
Alameda	1,063,200	1,087,400	24,200	IMPORTS
Contra Costa	704,700	536,400	-168,300	EXPORTS
Marin	166,100	164,000	-2,100	EQUAL[1]
Napa	83,000	89,000	6,000	EQUAL[1]
San Francisco	547,500	815,700	268,200	IMPORTS
San Mateo	490,700	526,600	35,900	IMPORTS
Santa Clara	1,313,400	1,481,700	168,300	IMPORTS
Solano	305,500	204,700	-100,800	EXPORTS
Sonoma	309,100	321,000	11,900	EQUAL[1]
Region	***4,983,200***	***5,226,300***	***243,100***	***IMPORTS***

[1] Defined as difference of 15,000 or less.

Source: MTC Superdistrict and County Summaries of ABAG's Projections 2003 2000-2030 Data Summary, 2003

Growth-inducing potential can be affected at the local and corridor level by changes in the jobs/housing balance as local communities change General Plans and zoning and developers respond to perceived opportunities where there is an imbalance. Jobs/housing balance compares the available housing and available jobs within a community, a city or other geographically defined subregion. Jobs/housing balance is based on the premise that commuting, the overall number of vehicle trips, and the resultant vehicle miles traveled can be reduced when sufficient jobs are available locally to balance the employment demands of the community and when commercial services are convenient to residential areas.

Planning for a jobs/housing balance builds on and integrates analyses of employment potential (existing and projected), housing demand (by income level and housing type), new housing production, and the relationship between employment opportunities and housing availability. Improving the jobs/housing balance so that the number of jobs is approximately the same as the number of employed residents – a ratio of 1:1 – requires carefully planning for the location, intensity, and nature of jobs and housing in order to encourage a reduction in vehicle trips and miles traveled and a corresponding increase in the use of mass transit and alternative modes of transportation, such as carpools, bicycling, and walking.

Table 2.11-7 shows the current and projected jobs-housing balance by Bay Area County. The jobs/housing ratio can also be displayed in more detail by MTC superdistricts, as shown in Table 2.11-8. In theory, a 1:1 ratio would indicate balance and improved opportunities for reduced commuting distances when the types of jobs match the skills of the local residents (although commuting is not reduced where there are mismatches between jobs and worker skills and income and housing affordability). An imbalance, particularly where there are fewer jobs than employed residents and the ratio is less than 1.0, can result in growth inducement as local officials and developers take actions to add non-residential land uses and increase the job base. These actions, in turn, can create pressure for additional growth. Also, if there is an imbalance in jobs and housing within a particular city, other cities may seek to fill the gap, whether it be housing or jobs to meet market demand. This can result in pressure for creation of jobs or housing in distant communities, and create a demand for additional infrastructure and services growth.

Table 2.11-7: Current and Projected Jobs/Housing Balance by County

	2000			*2030*			
Superdistrict	*Employed Residents*	*Jobs*	*Jobs/ Employed Residents*	*Difference*	*Jobs*	*Jobs/ Employed Residents*	*Difference*
Alameda	697,900	751,700	1.08	1,063,200	1,087,400	1.02	-0.05
Contra Costa	483,900	361,100	0.75	704,700	536,400	0.76	+0.01
Marin	141,000	123,000	0.87	166,100	164,000	0.99	+0.11
Napa	67,100	66,800	1.00	83,000	89,000	1.07	+0.08
San Francisco	444,900	634,400	1.43	547,500	815,700	1.49	+0.06
San Mateo	403,100	395,900	0.98	490,700	526,600	1.07	+0.09
Santa Clara	959,100	1,092,300	1.14	1,313,400	1,481,700	1.13	-0.01
Solano	179,500	123,200	0.69	305,500	204,700	0.67	-0.02
Sonoma	229,300	205,200	0.89	309,100	321,000	1.04	+0.14
Bay Area	***3,605,700***	***3,753,700***	***1.04***	***4,983,200***	***5,226,300***	***1.05***	***+0.01***

Source: MTC Superdistrict and County Summaries of ABAG's Projections 2003 2000-2030 Data Summary, 2003

Table 2.11-8: Current and Projected Jobs/Housing Balance by MTC Superdistrict

		2000			*2030*			
	Superdistrict	*Employed Residents*	*Jobs*	*Jobs/ Employed Residents*	*Employed Residents*	*Jobs*	*Jobs/ Employed Residents*	*Difference*
1	Downtown San Francisco	73,000	387,000	5.28	99,000	490,000	4.95	-0.33
2	Richmond District	134,000	82,000	0.61	150,000	103,000	0.69	0.08
3	Mission District	167,000	138,000	0.82	221,000	187,000	0.85	0.02
4	Sunset District	70,000	28,000	0.40	77,000	35,000	0.46	0.06
5	Daly City/San Bruno	161,000	163,000	1.02	192,000	227,000	1.18	0.17
6	San Mateo/Burlingame	122,000	112,000	0.92	146,000	145,000	0.99	0.07
7	Redwood City/Menlo Park	121,000	121,000	1.00	153,000	154,000	1.01	0.01
8	Palo Alto/Los Altos	102,000	179,000	1.76	126,000	203,000	1.61	-0.15
9	Sunnyvale/Mountain View	143,000	372,000	2.60	206,000	474,000	2.31	-0.29
10	Saratoga/Cupertino	188,000	146,000	0.78	218,000	184,000	0.84	0.07
11	Central San Jose	147,000	161,000	1.09	255,000	256,000	1.00	-0.09
12	Milpitas/East San Jose	196,000	120,000	0.61	272,000	172,000	0.63	0.02
13	South San Jose/Almaden	132,000	71,000	0.54	156,000	101,000	0.65	0.11
14	Gilroy/Morgan Hill	50,000	42,000	0.84	80,000	92,000	1.15	0.31
15	Livermore/Pleasanton	91,000	119,000	1.31	176,000	212,000	1.20	-0.10
16	Fremont/Union City	163,000	146,000	0.89	239,000	228,000	0.95	0.06
17	Hayward/San Leandro	168,000	164,000	0.97	230,000	217,000	0.94	-0.03
18	Oakland/Alameda	193,000	216,000	1.12	304,000	306,000	1.01	-0.11
19	Berkeley/Albany	82,000	107,000	1.30	114,000	124,000	1.09	-0.22
20	Richmond/El Cerrito	115,000	76,000	0.66	156,000	112,000	0.71	0.05
21	Concord/Martinez	123,000	105,000	0.85	172,000	147,000	0.85	0.00
22	Walnut Creek/Lamorinda	72,000	83,000	1.15	94,000	98,000	1.05	-0.10
23	Danville/San Ramon	64,000	54,000	0.83	104,000	81,000	0.78	-0.06
24	Antioch/Pittsburg	109,000	44,000	0.40	179,000	99,000	0.55	0.15
25	Vallejo/Benicia	68,000	44,000	0.65	103,000	71,000	0.69	0.04
26	Fairfield/Vacaville	112,000	79,000	0.71	202,000	133,000	0.66	-0.05
27	Napa	47,000	41,000	0.89	61,000	62,000	1.02	0.14
28	St. Helena/Calistoga	20,000	25,000	1.25	22,000	27,000	1.21	-0.04
29	Petaluma/Sonoma	83,000	61,000	0.73	108,000	103,000	0.95	0.22
30	Santa Rosa/Sebastopol	108,000	124,000	1.14	149,000	188,000	1.26	0.12
31	Healdsburg/Cloverdale	37,000	21,000	0.55	52,000	31,000	0.60	0.05
32	Novato	32,000	28,000	0.87	42,000	45,000	1.09	0.22
33	San Rafael	59,000	53,000	0.90	66,000	64,000	0.96	0.06
34	Mill Valley/Sausalito	50,000	42,000	0.84	58,000	55,000	0.94	0.11

Source: MTC Superdistrict and County Summaries of ABAG's Projections 2003 2000-2030 Data Summary, 2003

GROWTH-INDUCING EFFECTS OF PROPOSED TRANSPORTATION 2030 PLAN

Growth-inducement effects would be considered significant if implementation of the Transportation 2030 Plan:

- Stimulates substantial and unplanned population growth in the region;
- Encourages local governments to change land use plans in response to the improved infrastructure, or
- Requires the construction of new facilities that could cause significant environmental effects.

As indicated in Table 2.11-6, the population of the Bay Area and all nine Bay Area counties is projected to grow by an aggregate of almost 2 million people between 2000 and 2030. This population growth is expected to occur with or without transportation improvements, since the factors most affecting population growth are birth rates, immigration, job opportunities, housing availability, climate, etc. The quality of the regional transportation system serving an area has a very limited role on overall growth compared to these factors. The availability of developable land, and, increasingly, opportunities for redevelopment in existing urban areas, has a major influence on where growth can take place. Similarly, the increasing number of local growth management initiatives such as urban limit lines, urban reserve areas, community separators, rural land preservation programs, conservation easements, parks, greenbelts and open space acquisition, and agricultural land preservation trusts effectively define land areas where urban growth cannot occur.

All factors considered, it is unlikely that the transportation system expansion contemplated in the proposed Transportation 2030 Plan will be of sufficient magnitude compared to the in-place transportation system to stimulate new growth beyond the 29 percent increase in population and 39 percent increase in jobs that are currently projected. There are four reasons for this.

- Historically, transportation investment in general, and increased transportation capacity in particular, lag behind the growth that has already occurred in the Bay Area (for example, Route 4 in eastern Contra Costa County and US 101 in northern Marin and Sonoma counties). The situation is likely to continue with the limited fiscal resources for system capacity expansion.
- Due to the maturity of the existing transportation system and the mode choices already offered, incremental corridor improvements will play a minimal role in attracting or inducing new development to the region as a whole. The regional health of the economy, the skills of the labor force, the stature of the educational system, particularly the universities and their research programs, the strength of local, regional and international markets, and interregional transportation costs are all more important influences on interregional location decisions.

- Growth is already limited by the historic inability of the Bay Area to provide an adequate supply of housing and at an affordable cost, resulting in some 150,000 job holders in the Bay Area living outside the nine county region and commuting into the Bay Area for their jobs.

- Most of the local agencies in the Bay Area with land use jurisdiction over territory that lies along the urban/rural boundaries have adopted growth management plans, urban limit lines, urban reserve areas or community separators, performance standards for transportation systems and public facilities and services, and large lot rural and agricultural zoning, to manage urban sprawl, irrespective of the presence or absence of inter-regional transportation facilities that connect urban centers. Many jurisdictions also have adopted incentive programs for infill development, particularly in transit corridors and around rail transit stations, some of which are supported by MTC's Transportation for Livable Communities (TLC) and Housing Incentive (HIP) programs. As a consequence, the indirect or cumulative effects of the proposed Transportation 2030 Plan on long-term growth are expected to be minimal.

As indicated in Chapters 2.1 of this EIR, overall mobility in the region will be more constrained in 2030 than it was in 2000, even with implementation of the Transportation 2030 Plan. There will be more peak period congestion, more total vehicle hours of delay and more lane miles of roads with poor or very poor levels of service. As a result, the increasing congestion could actually discourage new firms from locating in the Bay Area or cause some existing firms to consider relocating away from the region. Consequently, to the extent that the transportation network has any effect on regional growth, the most likely effect is that the Bay Area's inability to construct a transportation infrastructure sufficient to meet travel demand may dampen the projected rate of population and employment growth.

While the Transportation 2030 Plan would not be expected to affect overall regional population and employment growth, the priority setting processes and the availability of funding to pay for planned projects could affect the way the Plan is implemented. These decisions, in turn, could potentially have consequences for local growth and land development in some parts of the region over the coming twenty-five years, but these effects would be consistent with *Projections 2003*. In developing *Projections 2003*, ABAG introduced Smart Growth assumptions into the regional population forecasts, and Smart Growth objectives are one of the performance criteria used by MTC in evaluating projects to be included in the Transportation 2030 Plan pursuant to MTC's Resolution 3564. Under *Projections 2003,* in the next 25 years, population growth rates would increase in the most urbanized counties and decrease in the least urbanized counties when compared with the prior "trends" projections, reflecting the idea of infill and greater densities within existing urban areas. Relative to *Projections 2002*, *Projections 2003* show a 9.1 population increase in San Francisco and a 5.4 percent increase in Santa Clara County with the new Smart Growth assumptions, while showing a 7.9 percent decrease in Napa County population growth and 5.5 percent decrease in Sonoma County.

Some transportation improvements in the Transportation 2030 Plan could have localized effects on the timing and location of development, particularly infill development and urban redevelopment. The Plan calls for a substantially greater increase in transit supply (passenger seat miles per hour would increase by 34 percent) compared to highway capacity (a 7 percent increase in roadway lane miles). In this respect, the Transportation 2030 Plan has a city-centered focus (consistent with *Projections 2003*), and gives priority to transportation improvements that serve presently urbanized locations. This focus is supported by MTC's 5-point transportation and land use platform adopted as part of the Transportation 2030 Plan and by a criterion in MTC's Resolution 3434 that call for transit-supportive land use around transit stations and in transit corridors.

Through the Plan's funding of transit projects, it would be expected that densities would increase and/or infill development would occur sooner in some jurisdictions. In some areas, improved transit might be one factor facilitating urban infill development and improving jobs/housing balance, and to the extent that occurs, the Transportation 2030 Plan could support infill development or urban redevelopment. Improving the jobs/housing balance in turn acts as a deterrent to urban sprawl and regional growth inducement outside of urban areas. While any decision to amend local General Plans for higher density or a better jobs/housing balance would remain a local decision, the Transportation 2030 Plan may have the effect of encouraging more growth, in some locally concentrated areas with good transit access, than is currently anticipated in local General Plans. However, this type of localized growth is consistent with ABAG *Projections 2003.*

In conclusion, the Transportation 2030 Plan would not have a regional growth inducing effect. Rather, the regional deficiency in transportation infrastructure is expected to increase during the term of the Plan, and this could potentially dampen growth pressures. Localized densification effects, if any, would not represent growth beyond what is anticipated by *Projections 2003* for urban areas or for the overall region.